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INDEX

1

MONITORING CRITICALLY ILL

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Surviving a critical illness is likely today as a result of advances in emergency treatment and medical care. The survival is more likely due to close monitoring an instantaneous interventions which is possible in modern critical and intensive units.

History of Physiological monitoring The earliest foundations for acquiring physiological data date to the end of the Renaissance period.2 In 1625, Santorio, who lived in Venice at the time, published his methods for measuring body temperature with the spirit thermometer and for timing the pulse (heart) rate with a pendulum. The principles for both devices had been established by Galileo, a close friend. Galileo worked out the uniform periodicity of the pendulum by timing the period of the swinging chandelier in the Cathedral of Pisa, using his own pulse rate as a timer. The results of this early biomedical-engineering collaboration, however, were ignored. The first scientific report of the pulse rate did not appear until Sir John Floyer published “Pulse-Watch” in 1707. The first published course of fever for a patient was plotted by Ludwig Taube in 1852. With subsequent improvements in the clock and the thermometer, the

temperature, pulse rate, and respiratory rate became the standard **vital sign**s. In 1896, Scipione Riva-Rocci introduced the sphygmomanometer (blood-pressure cuff), which permitted the fourth vital sign, arterial blood pressure, to be measured. A Russian physician, Nikolai Korotkoff, applied Riva-Rocci's cuff with a stethoscope developed by the French physician Rene Laennec to allow the auscultatory measurement 3 of both systolic and diastolic arterial pressure. Harvey Cushing, a preeminent U.S. neurosurgeon of the early 1900s, predicted the need for and later insisted on routine arterial blood pressure monitoring in the operating room. Cushing also raised two questions familiar even at the turn of the century: (1) Are we collecting too much data? (2) Are the instruments used in clinical medicine too accurate? Would not approximated values be just as good? Cushing answered his own questions by stating that vital-sign measurement should be made routinely and that accuracy was important [Cushing, 1903].

Since the 1920s, the four vital signs—temperature, respiratory rate, heart rate, and arterial blood pressures—have been recorded in all patient charts. In 1903, Willem Einthoven devised the string galvanometer for measuring the ECG, for which he was awarded the 1924 Nobel Prize in physiology. The ECG has become an important adjunct to the clinician's inventory of tests for both acutely and chronically ill patients. Continuous measurement of physiological variables has become a routine part of the monitoring of critically ill patients. At the same time that advances in monitoring were made, major changes in the therapy of life-threatening disorders were also occurring. Prompt quantitative evaluation of measured physiological and biochemical variables became essential in the decision-making process as physicians applied new therapeutic interventions. For example, it is now possible—and in many cases essential—to use ventilators when a patient cannot breathe independently, cardiopulmonary bypass equipment when a patient undergoes open-heart surgery, hemodialysis when a patient's kidneys fail, and intravenous (IV) nutritional and electrolyte (for example, potassium and sodium) support when a patient is unable to eat or drink.

CRITICAL CARE VS INTENSIVE CARE: WHAT’S THE DIFFERENCE?

Critical Care

In general terms, the concept of critical care refers to a type of patient care where the patient’s life is threatened. Critical care patients typically require close **monitoring**, **medication**, and **advanced medical equipment** to keep their body functioning while professional care is administered. Examples of common calls in the air medical world where critical care is required include:

- Cardiac arrest
- Stroke
- Major traumas
    - Burns
    - Injuries from accidents
    - Gunshots
- Poisoning
- Pneumonia
- Surgical Complications

Patients may remain in a **critical care unit (CCU)** for days, weeks, or months depending on their specific conditions and recovery progress.

Intensive Care?critical care is a type of care delivered under the "umbrella" of intensive care, and vice versa. However, in general, the idea of "intensive" care may be considered to be interchangeable with the idea of "critical" care.

ICU vs CCU: An **intensive care unit** and a **critical care unit** can generally be considered to mean the same thing. Beyond this, there are many specialized types of **ICUs** that provide critical care to specific types of patients or to patients with specific health conditions.For example, a Neonatal Intensive Care Unit (**NICU**) specializes in providing critical care to infants and newborns. A **CICU** (Cardiac Intensive Care Unit) or **CCU** (coronary care unit) is a section of a hospital that specializes in providing care for patients who have suffered heart attacks or other cardiac conditions requiring the constant monitoring that critical (or intensive) care provides.

The key is Patient Monitoring

Repeated or continuous observations or measurements of the patient, his or her physiological function, and the function of life support equipment, for the purpose of guiding management decisions, including when to make therapeutic interventions, and assessment of those interventions" [Hudson, 1985, p. 630].

A patient monitor may not only alert caregivers to potentially life-threatening events; many provide physiologic input data used to control directly connected life-support devices.

FOUR CATEGORIES OF PATIENTS WHO NEED PHYSIOLOGIC MONITORING:

- 1. Patients with unstable physiologic regulatory systems; for example, a patient whose respiratory system is suppressed by a drug overdose or anesthesia. 2. Patients with a suspected life-threatening condition; for example, a patient who has findings indicating an acute myocardial infarction (heart attack). 3. Patients at high risk of developing a life-threatening condition; for example, patients immediately post open-heart surgery, or a premature infant whose heart and lungs are not fully developed. 4. Patients in a critical physiological state; for example, patients with multiple trauma or septic shock.

Purpose of Monitoring

- Monitoring ensures rapid detection of changes in the clinical status
- Allows for accurate assessment of progress and response to therapy
- When clinical signs and monitored parameters disagree, assume that clinical assessment is correct
- Trends are generally more important than a single reading
- Use non-invasive techniques when possible
- Alarms are crucial for patient safety
- In critical care ,Patient care is a multidisciplinary process

1. Physician: diagnose diseases, prescribe appropriate medications, authorize other care services.2. Nurse: assess patient's understanding of his/her condition and treatment and his/her self-care abilities and practices; teach and counsel as needed; help patient to perform exercise sat home; report findings to physician and other caregivers. 3. Nutritionist: assess patient's nutritional status and eating patterns; prescribe and teach appropriate diet to control blood pressure and build physical strength.4. Physical therapist: prescribe and teach appropriate

exercises to improve strength and flexibility and to enhance cardiovascular health. 5 specialist may be an anesthesiologist, cardiologist ,nephrologists, neurologist ,pulmonologist

In critical care, the monitoring is essential to the daily care of ICU patients, as the optimization of patient's hemodynamic, ventilation, temperature, nutrition, and metabolism is the key to improve patient's survival. Indeed, the decisive endpoint is the supply of oxygen to tissues according to their metabolic needs in order to fuel mitochondrial respiration and , therefor, life. In this sense, both oxygenation and perfusion must be monitored in the implementation of any resuscitation strategy.

Regarding respiratory monitoring of ventilated ICU patients, it includes serial assessment of gas exchange, of liberation from invasive positive pressure ventilation. Also, the monitoring of nutritional and metabolic care should allow controlling nutrients delivery, adequation between energy needs and delivery, and blood glucose, The presentation will describe the clinical use of the major endpoints of perfusion/oxygenation adequacy and of temperature, respiratory, nutritional, and metabolic monitoring.

The arterial blood gas analysis is one of the most commonly used clinical test in assessing a patient's oxygenation, ventilation, as well as acid-base status. However, ABG analysis appears to be a complicated and confusing matter to many physicians. Very often, this procedure was performed incorrectly, compromising its clinical usefulness and accuracy. To maximize its yield, one must understand its technical details, including the techniques, sample collection, handling and common pitfalls. More important, to correctly interpret the ABG analysis, a practical, stepwise approach is required. That stepwise approach should begin with the assessment of oxygenation, ventilation, and acid-base disturbance. This lecture will focus only on the interpretation of acid-base balance. Once one utilizes this test with care and knowledge and it will soon a simple and straightforward test for everyone.

2

STUDY OF CARCINOGENIC ELEMENTS PRESENT IN TEXTILE FABRICS (DYED & PRINTED) IN AHMEDABAD GUJARAT

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ABSTRACT:

Background: With the development of industries quality & requirement of fabric has been changing & for enhancing fabric qualities like whiteness, colour fastness, crease resistance, flame retardant finish, various type of dyes & chemicals are used. Some of them are carcinogenic, asthmatic & allergic for human being and their discharge to soil& water is harmful for the environment. Carcinogenic substances present in textile product or accessory and exceed a maximum amount or which

evolve during normal or prescribed use and exceed a maximum amount , which may have some kind of effect on the people during normal and prescribed use and may according to current scientific knowledge, be injurious to health.

Method and Observations: Parameter of toxins i.e. Formaldehyde Toxic heavy Metals Banned Amines in samples collected from different types of printed, dyed cotton, polyester, and hosiery fabrics were collected from different parts of Ahmedabad.

Conclusion: An analysis of the results obtained shows that such carcinogenic elements are present in our fabric and garments in objectionable amount, i.e. above detection limit. This may be very harmful to public health and country's environment.

.**KEY WORDS:** carcinogenic, fabrics, formaldehyde.

Introduction: With the development of industries quality & requirement of fabric has been changing & for enhancing fabric qualities like whiteness, color fastness, crease resistance, flame retardant finish, various types of dyes & chemicals are used. Some of them are carcinogenic, asthmatic & allergic for human being and their discharge to soil& water is harmful for the environment. Carcinogenic substances present in textile product or accessory and exceed a maximum amount or which evolve during normal or prescribed use and exceed a maximum amount , which may have some kind of effect on the people during normal and prescribed use and may according to current scientific knowledge, be injurious to health. Chemicals of prime concern are Formaldehyde, Heavy metals, Azo dyes, Disperse dyes, PCP Chlorinated phenols, Phthalates, Toxic Pesticides, AOX etc. Due to globalization & liberalized economy, consumer & government are becoming concern in regards to green activities & environment friendly consumers goods .They prefer products which have no harmful effect to environment & public health. This has forced textile industries to adopt more eco friendly chemicals & manufacturing processes. Therefore so many countries have developed several schemes to promote the production of environment-friendly products. So that textile industries should adopt eco friendly & nonhazardous chemicals in fabric manufacturing. There are numerous carcinogenic elements present in textile fabrics. This necessitates the study & control of such type of elements.

PRINCIPLES OF STUDY

- In India there are no rigid laws & quality control available with reference to this that's why textile manufacturers of India are not very much concerned about this.
- Specially for the garments which are for sale in the local Indian Market. They use such elements without any care & control, which spoil the environment & public health of our country, though slowly but continuously.
- Aim of this study is to create the awareness about dangers of carcinogens present in textile fabrics

MATERIAL AND METHOD:

- Samples for the project work were collected from following sites –

Open market like – Lal Darwaja Market
Maninagar Market
Processing Houses – Unit I GIDC Phase –vatva
Unit II GIDC Phase - vatva
Unit III - Narol
Unit IV - Pali (Raj.)

❖ **TYPES OF SAMPLES**

Different types of printed, dyed cotton, polyester, and hosiery fabrics were collected.

❖ **No. OF SAMPLES:**

(1) For Formaldehyde Detection : 20 fabrics
(2) For Heavy Metal Detection : 20 fabrics
(3) For Prohibited Amines : 10 fabric

❖ **Present study includes analysis of following parameters:**

Sr.No.	Parameter studied	Methods	Instrumental analysis
1.	formaldehyde	IS :14563:1998	By UV VIS tech
2.	Toxic heavy Metals	IS/ISO 71-3:1995	EDXRF, AAS
3.	Banned Amines	ICS 59040;71:40:50	HPTLC

(A) Determination Of Formaldehyde :

❖ **Principle:**

Formaldehyde is extracted from a textile sample with water at 40°c. The amount of formaldehyde is then determined by spectrophotometer / Colorimeter.

❖ **Reagents:**

All reagents must be of Analytical Reagent Grade. These are as given below

- **Nash Reagent** –

Dissolve 150 gm of ammonium acetate in about 800ml distilled water, then add 3ml of Glacial Acetic Acid and 2ml of Acetyl Acetone solution. Transfer into a 1000ml volumetric flask & make up to the Mark with Distilled water. Store it in a brown bottle.

- Formaldehyde (approx 37%)
- **Ethanolic Solution of Dimedone** –

Prepare by dissolving 1gm of Dimedone(dimethyl dihydro resorcinol or 5,5-dimethyl –cyclohexanedione) in ethanol & by diluting the solution with ethanol to make 100ml.

Determination of Formaldehyde **:**

Preparation of Standard solution & Calibration:

1 Preparation of standard solution (S1) -

Prepare an approximately 1500µg/lit stock solution of formaldehyde by diluting 3.8ml of formaldehyde solution to 1lit with water.

2 Preparation of standard solution (S2) -

Dilute 25ml of the solution S1 with water to 500ml distilled water in a volumetric flask.

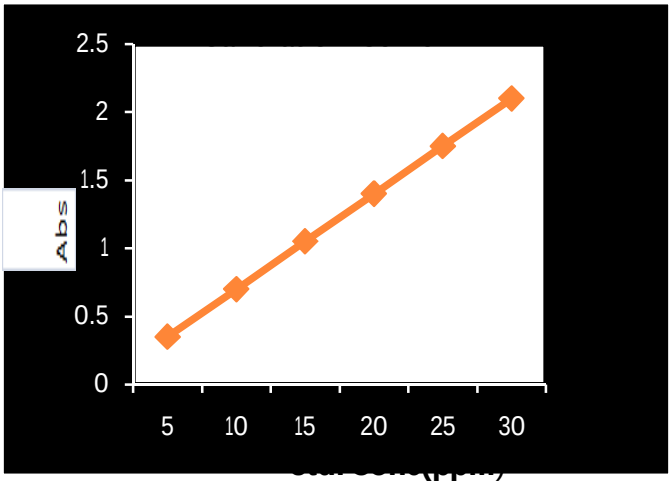
This solution contains 75mg/lit of formaldehyde.

3 Preparation of Calibration Solution & Curve–

Different dilutions of solution S2 is prepared and a calibration curve is prepared &absorbance is Measured by means of UV *Calculate the first order calibration curve of the type y = mx+c , this calibration curve will be used for all measurement.*

Calibration Curve

Calibration Curve



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y = mx+c , this calibration curve will be used for all measurements.

Instrumental Analysis - UV VIS SPECTROMETRY

For detection of Formaldehyde concentration present textile fabric Ultra Violet Spectrophotometry is used which is described as follows:

(B) Determination of Heavy metal - By AAS

Method: IS/ISO 71-3:1995

Principle :

- Heavy metals are extracted from the fabric by perispiration method. A sample of textile fabric is treated with perispiration solution in a reaction vessel on waterbath.

- Then Heavy Metals are perispirated from fabric in to the solution then after addition of conc. Nitric acid, evaporation of solution is performed till half of the volume is remained.
- Then cool it up to room temperature & absorbance is noted by AAS.

Reagents :

- L-Histidine monohydrochloride monohydrate
- Sodium dihydrogen orthophosphate dihydrate
- Sodium chloride
- Concentrated HNO3 & Acetic acid (0.1N)
- Standard Metal solutions
- Perispiration Solution :
  - Take 0.5 gm L-Histidine monohydrochloride monohydrate +5gm sodium chloride + 2.2gm of sodium dihydrogen orthophosphate dihydrate in 1000ml volumetric flask & make up to the mark with distill water.
  - The solution is brought to pH: 5.5 with 0.1N Acetic Acid.

Preparation Of Standard Solution & Dilution :

- 100 ppm stock solutions are prepared for each metal by dissolving specific amounts of corresponding metal salt in 100ml distilled water.
- Then these solutions are diluted to working standard ranges, such 0.5ppm, 1ppm, 1.5ppm, 2ppm, 2.5ppm, 3ppm, 3.5ppm, 4ppm, 4.5ppm etc.

Preparations of Test Specimens:

- Take fabric, cut it into small pieces.
- Take it into 250 ml conical flask.
- Add 150 ml of freshly prepared perispiration solution.
- Keep this flask in water bath for 30 min at 50 C .
- Filter it with whatman filter paper & cool it to room temperature.
- Acidify the solution by adding 1 ml of conc. HNO3
- Then concentrate the solution to about half of its volume

on a hot plate.

- Then make it 100 ml with distilled water.

ATOMIC ABSORPTION SPECTROMETRY

For Heavy Metal determination AAS technique is used .

Principle:

- AAS depends upon on the absorption of quantum of energy of characteristic wave length by atoms when going from a ground state to an excited state. Atoms absorb light at a definite wave length depending upon the nature of the elements.
- This absorption is directly proportional to the path length of the flame and concentration of atomic vapour of the matter in flame i.e. It follows Beer's law.
  A = εbc
- AAS uses this fact to achieve a high specificity for many elements and low levels of interference from other elements or complex matrix.

(C) DETERMINATION OF BANNED AMINES

Principle –

- A sample of textile under test is treated with Sodium dithionite in a citrate buffered aqueous solution (pH= 6) at 70°c in a closed vessel.
- The amines released in the process of reductive cleavage are transferred to di ethyl ether phase by means of Liquid –Liquid Extraction using separating funnel . the ether is concentrated under mild condition in turbo evaporator & residue is dissolved in methanol.

Detection of Amines is done by means of HPLC , HPTLC or Capillary Gas Chromatograph with MS & quantification is done by using HPLC with DAD.

Reagents -

Methanol (HPLC Grade) & Diethyl ether (HPLC Grade)
Citrate Sodium Hydroxide Buffer Solution (pH = 6, preheated
Standard Amines of highest Available purity
Calibration solution 15ppm
Sodium dithionite (purified)
Sodium Sulphate (LR)

Determination of Amines :

Preparation of Test specimens :

Sampling –

- Take 1to 2gm of textile material under test from different places covering equally all the colours.
- Cut the sample into small pieces (about 5mm*5mm),mix thoroughly, condition the sample to moisture equilibrium from the dry side in standard atmosphere.

Separation of Amines-

- Take the weighed sample in a 30ml reaction vessel , add 17ml of citrate buffer solution & shake well.
- Keep it in water bath with continuous shaking for 30min at 70˚c.
- Then add 3ml of freshly prepared sodium dithionite solution to reaction vessel & shake well.
- Keep the reaction vessel in water bath shaker maintained at 70˚c for 30 min.
- Take out the vessel& cool it to room temperature in about 2 min by keeping in ice cold water.
- Carry out the liquid-liquid extraction by using diethyl ether. Using separating funnel as given in 6.2.1

Liquid-Liquid Extraction:

- Transfer the extract from the reaction vessel to separating funnel through a suitable glass funnel. Squeeze the textile material in the reaction vessel using glass rod & transfer the solution to the separating funnel.

Liquid-Liquid Extraction:

- Add about 10ml of diethyl ether to the reaction vessel & stir well. Transfer the extract to the separating funnel. Repeat this process once more, close the funnel.
- Shake the separating funnel for a few seconds; release the pressure by opening the stopcock. repeat this process 2to 3 times & keep it on the stand.
- After the formation of two layer collect the lower layer in a beaker. collect the top layer in a test tube.
- Transfer the aqueous layer to separating funnel. Add about 10ml of diethyl ether & repeat the procedure.
- Repeat the whole procedure once more for better extraction.

Concentration of Amines-

- Pass the organic layer collected in the test tube through sodium sulphate bed to remove water molecules.
- Pass a few ml of diethyl ether through the sodium sulphate bed & evaporate the extract to dryness.

Dissolve the residue in 1ml methanol & analyse by means of HPTLC.

Chromatographic Analysis –

HPTLC :

Stationery Phase – Silica Gel 60 with Fluorescence indicator F 254

Mobile Solvent – {1} Chloroform / Ethyl acetate (9.5 : 0.5)

{2} Toluene / Ethyl acetate / Diethylamine (7: 2.5: 0.5)

Development - Saturated chamber

Chamber saturation – 10 min

Development distance – 80 mm

Post-chromatographic Derivatization

Spread 1 g of sodium nitrate in 20 x 10 twin trough chamber & pour 1 ml HCl & cover the trough immediately
with a lid. Wait till the chamber is filled with nitrous fumes. Hold the chromatographic plate over the fumes for
a minute.

Fix the plate on the immersion unit. Take sufficient solution of N – Napthyl etylenediamine (GR / AR) dissolved in methanol in the ratio of 1g per 200 ml in the dip tank. Dip the chromatographic plate in the solution for 2 sec. dry the plate. Compare the colour of unknown bands with those of the standard bands.

RESULT & DISCUSSION

(A) Results for formaldehyde

Table 1: Standard Calibration Data & Calibration Curve for formaldehyde :-

Standard solution	Std. conc. (ppm)	Absorbance
Std.1	5	0.3501
Std.2	10	0.7002
Std.3	15	1.0513
Std.4	20	1.4013
Std.5	25	1.7506
Std.6	30	2.1010

(B) Results for Heavy Metals

Quantitative Result Sample – 1

Analyte	Result	Std.Dev.
Ti	86.607	0.265
S	8.065	0.246
Ca	3.131	0.085
Fe	1.132	0.065
Cu	0.820	0.037
Sc	0.150	0.032
Nb	0.095	0.00

Quantitative Result - Sample 2

Analyte	Result	Std. Dev
Si	31.208%	2.700
Ca	26.756	0.156
Ba	13.773	0.234
Fe	9.979	0.064

Ti	9.592	0.100
K	3.989	0.125
S	3.304	0.186
Cu	1.226	0.224
Zn	0.172	0.017

(C) Results for Banned Amines :

Sample No.	Name of Amine	Concentration (ppm)
1	PCA	4.484
2	PCA	1.237
3	PCA	11.76
4	BDH	1.54
5	PAAB	2
6	ABP	10
7	BDH	1.5
8	PCA	5.52
9	PAAB	3.52
10	BDH	2.34

Conclusion:

An analysis of the results obtained shows that such carcinogenic elements are present in our fabric and garments in objectionable amount, i.e. above detection limit. This may be very harmful to public health and country's environment.

- However, most striking & alarming observation spotted from the results is high level of Formaldehyde in some fabric samples.
- Also the Toxic Metals like lead, Chromium, Cadmium, Zinc, Copper are present in high concentration above permissible range which is fixed by different standards.
- Some sample show the presence of Amine like Benzidine which should not be present in fabrics at any cost. Some other banned amines are present in fabric samples.
- Textile industry is a most important field, earning crores of dollars for our country .It should not be left uncontrolled. More public awareness is necessary and rigid laws are required to control and limit the use of carcinogenic compounds on one hand and well equipped laboratories & methods are required for the testing of carcinogens on other hand. As testing of carcinogenic elements are not only very difficult task but at the same time very costly too.
- The present work is just a spark or a drop in ocean. Further study is to be required in this field. Aim of this study is to create the awareness about dangers of carcinogens present in fabrics.

Forensic significance

- Due to globalization & liberalized economy consumer & government are becoming concerned in regards to green activities & environment friendly consumers goods .They prefer products which have no harmful effect to environment & public health. The trend of green consumerism has been extended to textile & apparel products.
- While formulating eco-norms for the issuance of eco labels at present the use of different classes of chemicals in textile production & processing are taken into consideration. These are-
  Formaldehyde, Heavy Metal Residues, Azo Dye stuff, Toxic Pesticide, Halogen Carrier and chlorine Bleaching.

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3

"EFFECT OF ELECTROMAGNETIC FIELDS EMITTED BY CELLULAR PHONE BASE STATION ON HUMAN HEALTH"

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ABSTRACT

Background: In today's world Globalization is the new mantra. It is very difficult not to have technology. But with technology, come certain hazards. The only way to beat these is again, better technology. Electromagnetic radiation is everywhere. More and more wireless communication services (cellular phones, wireless internet, etc.) are expected to come up and it seems that there is no way to reverse this trend. A cell phone technology is one of them, which introduce in India few years back, but now its need of society. It also works on electromagnetic radiation. Therefore, the aim of the present study is to find out the effect of cellular phone base station radiation, due to frequent exposure, on human health. **Material & Method** The present study was conducted over a period of three years. This covers urban as well as rural areas of Surat districts. The city of Surat was selected as the urban area while villages surrounding it represented the rural areas. Study obtains information regarding radiation exposure to individuals by means of cellular phone base stations and their effect on human health. **Observation** : Study was under taken in 66 subjects, including control group. The study includes anthropometric parameters and standard cardiovascular autonomic function tests. **Conclusion: We** are not at all against any technologies coming up, we are welcoming all the technologies, but we maintain that health precautions and safety precautions must be taken. Even if effects are of small amplitude and do not seem to be detrimental. But once the energy is absorbed by the biological matter, can cause severe and long lasting damage to human health and effects will enhance due to frequent exposure to source. It might take years for the damage to produce noticeable symptoms.

INTRODUCTION

To find out the answer of our basic but million dollar question…….

Are cell phone base stations safe?

And to find out this, the obvious place to begin with is an internet and we found….

There is very limited data available on the possible effects of electromagnetic fields emitted by cell phone base stations on human health. Independent scientific studies have shown the risks like brain tumor, increase B.P., male infertility etc. But industry sponsored studies have failed to show a clear link between cell phone uses & health risk.

While there are no sufficient evidences that health parameters of rodents is affected by exposure to electromagnetic field, the data are still inconclusive, considering the above fact, we have designed the present project.

What the base stations are?

Mobile phone (cell phone) base stations are low-power multi-channel two-way radios. They emit the electromagnetic wave. In the media we are repeatedly observing the dreadful stories regarding mobile phone base station, even though it is in convincing to the people, who are still having towers on the top of their residing area. The exposure to base station has been accompanied by public debate on the possible adverse effects on human health. There are two direct ways by which health could be affected i.e. thermal (heating) effects and non-thermal effects, as a result of exposure. Mobile

phones tower may cause adverse health problems such as headache, sleep disturbance, impairment of short term memory.

AIMS & OBJECTIVE

To find out the effect of cell phone base station radiation, due to frequent exposure, on human health.

MATERIALS & METHODS

108 volunteers were interviewed out of which 96 were selected at start. In second year out of that 30 persons drop out so we studied 66 subjects including control group. In that Group I consist of 34 subject called control group and Group II consist of 32 subject called base station resident group.

Ethical approval and other aspects were taken into consideration while planning the experiments.

SELECTION OF SUBJECTS

The base station residents were identified who had fulfilled the following basic requirements:

- The distance of the base station was not more than 25 feet or 8 meters from the place of residence. The person is residing in the same area for not less than one year.

METHODOLOGY

The study includes Anthropometric parameters; Clinical examination and Autonomic function assessment were performed in both groups.

- ***Anthropometric parameters:***

  This includes height, weight, BMI etc.

- ***Clinical examination***:

  This includes Pulse rate and base-line blood pressure etc.

- ***Autonomic function tests***

Tests used to evaluate the ***Sympathetic activity*** are:

1. B P response to standing
2. Blood Pressure response to sustained handgrip

Tests used to evaluate the ***Parasympathetic activity*** are:

1. Heart rate response to standing
2. Heart rate response to Valsalva maneuver

1. B P RESPONSE TO STANDING

Resting systolic blood pressure was recorded in lying down position and thereafter in standing position after 1 minute. Difference in systolic blood pressure between lying and standing position was recorded. [Ewing D. J. 1988].

If systolic pressure decreased by ≤ 10 mmHg than it was taken as Normal, borderline if 11 – 20 mmHg and abnormal if ≥ 30 mmHg [Ewing D. J., 1988].

2. BLOOD PRESSURE RESPONSE TO SUSTAINED HANDGRIP

After an initial period of rest, base line blood pressure (mmHg) was recorded. Then each subject was told to perform isometric hand-grip (IHG) exercise with the help of hand grip dynamometer. The pressure on maximum compression by hand grip was recorded after 3 hand-grip exercises. Then the subjects were instructed to sustain the hand grip pressure at 30% of the maximum pressure for 5 min. Blood pressure changes were recorded at the interval of one min during the process. Change in Systolic Blood Pressure (SBP) is the most sensitive & specific measurement in diagnosing abnormality.

If systolic pressure decreased by > 16 mmHg than it was taken as Normal, borderline if 11 - 15 mmHg and abnormal if < 30 mmHg [Ewing D. J., 1988].

3. HEART RATE RESPONSE TO STANDING

ECG limb leads were attached to subject with strip recorder running in lead II, Subject was asked to stand from lying as quickly as possible. Measured 30: 15 ratio i.e. ratio of longest R-R interval at 30th beat to shortest R-R interval at 15th beats after standing. [Ewing DJ., 1988]. Normal: ≥ 1.04. Borderline: between 1.01-1.04. Abnormal: ≤ 1.00 [Ewing D. J., 1988 and Hutchison's clinical method, 19th ed.1989].

4. HEART RATE RESPONSE TO VALSALVA MANEUVER

The nose clip was applied to the subject and asked to blow into the sphygmomanometer to raise the mercury column to 40 mmHg pressure and retain it at that level for 15 sec. The ECG was recorded 15 sec. during maneuver & 30 sec. after the maneuver. Valsalva ratio was calculated as ratio of maximum heart rate during the strain (during maneuver) to the minimum heart rate after the strain.

If valsalva ratio increased ≥ 1.21 than it was taken as Normal; borderline if it was between 1.11 – 1.20 and abnormal if ≤ 1.11 [Ewing D. J., 1988 and Hutchison's clinical method, 19th ed. page no. 366, 1989].

OBSERVATION & RESULTS

The study group comprised of 66 of apparently healthy subjects. The autonomic function tests were performed in all these subjects. The data obtained was tabulated with respect to various parameters and was statistically treated and analysed. The data was arranged into suitable tables for discussion under the different headings. The mean difference was taken to be significant at P<0.05 levels. Statistical analysis was done using SPSS software version 17 for windows.

Table 1: Autonomic function assessment: B P response to standing in control group

		Blood Pressure (mm of Hg)		*1 Min. After Standing*	
		Systolic	***Diastolic***	***Systolic***	***Diastolic***
Control Group	***Range***	100 – 144	60 – 90	90 – 138	70 – 100
	Mean	117	75	109	84
	±SD	±13.33	±9.01	±13.52	±8.29

Base Station Resident	***Range***	110 – 144	70 – 90	100 – 140	70 – 110
	Mean	132.94	81.81	121.50	92.00
	±SD	±10.70	±9.56	±12.05	±9.20

Table 2: Autonomic function assessment: Blood Pressure response to sustained handgrip

Group ⇩		***B.P. (mm of Hg) Response to Sustained Handgrip***									
		After 1 Min.		***After 2 Min.***		***After 3 Min.***		***After 4 Min.***		***After 5 Min.***	
		SBP	***DBP***	***SBP***	***DBP***	***SBP***	***DBP***	***SBP***	***DBP***	***SBP***	***DBP***
Control Group	***Mean***	121	82	128	90	135	96	140	102	145	105
	±SD	±12.73	±8.11	±13.09	±7.29	±13.50	±6.83	±12.59	±8.83	±11.98	±7.90
Base Station Resident	***Mean***	138.31	88.25	143.44	95.13	148.38	100.56	154.38	106.13	159.25	110.38
	±SD	±12.18	±8.31	±13.94	±7.74	±14.30	±8.71	±15.61	±9.10	±16.68	±9.67

Table 3: Autonomic function assessment: Heart rate response to standing

Group ⇩		**Heart Rate Response to Standing**		
		Shortest R-R Interval (15th Beat)	**Longest R-R Interval (30th Beat)**	**Ratio**
Control Group	***Mean***	0.68	0.85	1.26
	±SD	±0.12	±0.13	±0.13
Base Station Resident	***Mean***	0.68	0.82	1.22
	±SD	±0.10	±0.11	±0.15

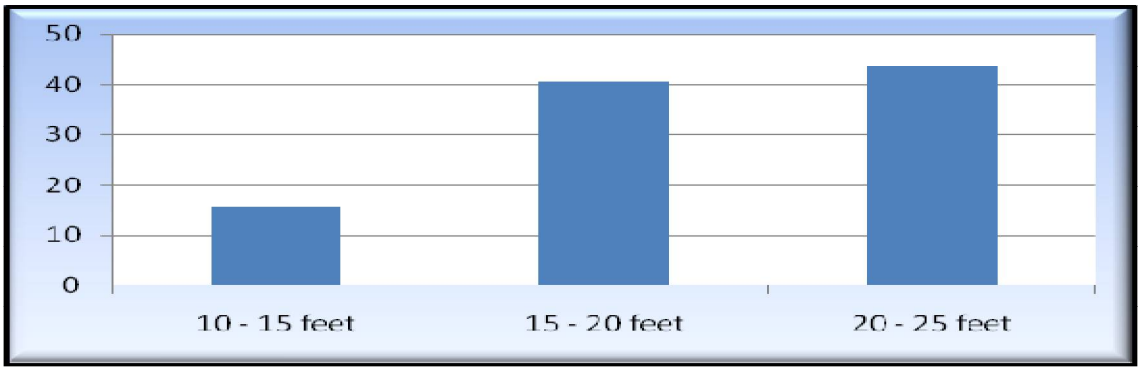
Table 4: Autonomic function assessment: Heart rate response to Valsalva maneuver

Group ⇩		**Heart Rate Response to VALSALVA Maneuver**		
		During Maneuver	**After Maneuver**	**Ratio**
		Shortest R-R Interval	**Longest R-R Interval**	
Control Group	***Mean***	0.75	0.97	1.30
	±SD	±0.12	±0.12	±0.08
Base Station Resident	***Mean***	0.74	0.97	1.31
	±SD	±0.09	±0.10	±0.08

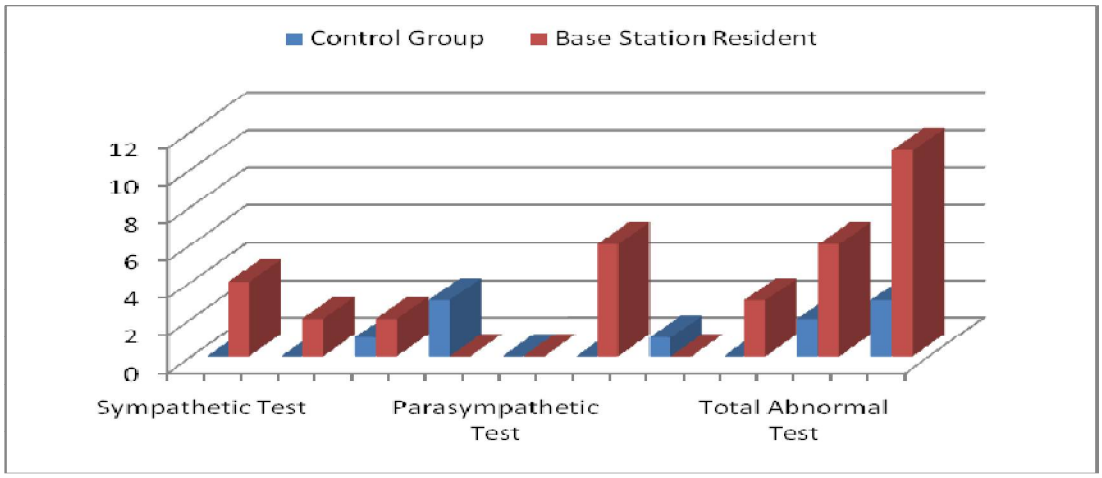
Table 5: ANS Response to different tests

Group	**Sympathetic Test**				**Parasympathetic Test**				**Total Abnormal Test**	
	BP Response to Standing		**Sustained Handgrip Test**		**HR Response to Standing**		**VALSALVA Manoeuver**			
	B	**A**	**B**	**A**	**B**	**A**	**B**	**A**	**B**	**A**
Control Group	**00**	**00**	**01**	**03**	**00**	**00**	**01**	**00**	**02**	**03**
Base Station Resident	**04**	**02**	**02**	**00**	**00**	**06**	**00**	**03**	**06**	**11**

Graph 1: Distance of Residence from Base Station



Graph 2: Response to different ANS tests



DISCUSSION

Alteration of ANS function will greatly influence the functions of vital organs especially the heart i.e. cardiovascular system. Various studies all ready done was not showing similarity in there result or we can say conflicting of results were obtained as an after mark of studies of autonomic activities in relation to the radiation exposure due to mobile phone base stations. The present study was designed to test the autonomic activities in 32 normal health individuals stating close to the base station and there comparison with control group. Abnormal result in more than two of the autonomic function tests are accepted as autonomic dysfunction.

Average values of results i.e. in heart rate or the various changes during ANS function test are significantly different between total abnormal tests in both groups. These changes may considerably influenced by exposure to base station therefore, our experimental protocol seems minimally biased since we confirmed that there were changes in ANS functioning due to frequent exposure to the base station radiation. Noted changes are statistically analyzed. The conclusion of the present study was compared with those of previous studies and results were drawn.

German investigators, Frey et al., (1998) report that exposure to electromagnetic fields during mobile phone use may increase resting blood pressure. Exposure of the

right hemisphere to a radio-frequency electromagnetic field for 35 minutes causes an increase in sympathetic efferent activity with increases in resting blood pressure between 5 and 10 mm Hg (Frey et al., 1998). Change in blood pressure due to base station radiations suggesting the slight increase in resting blood pressure was already suggested by Braune et al. (1998) and Stacy Eltiti et al. (2007)

In our study resting blood pressure i.e. systolic and diastolic blood pressure values were observed to be significantly increased in base station resident group as compared to the control group, which may be due to more pronounced vasoconstriction. The difference in our study with the other investigators is that we prolonged the exposure of the subjects for different duration for more than one year to observe the effect on subjects on being exposed to mobile cell use for a longer duration. Our observations reveal autonomic function changes do not alter in all the subjects but if we compare the study group with the controls than we find the values are significantly increased. Comparison of these results after duration of the exposure for a period of one year we found a significant alteration and are evident from the change in heart rate.

SUMMARY & CONCLUSION

Prolong exposure under the base station and their responses to sympathetic and parasympathetic function were changed. This demonstrates that prolonged exposure capable of causing hazards but required more time to do so. Although radiation exposures due to base station are very low, but once the energy is absorbed by the biological matter can cause severe and long lasting damage to human health. It might take years for the damage to produce noticeable symptoms. So further detail and prolong duration study should be carry out on experimental animal (i.e. histological study) to verify the said effect. *Based on this, we would like to conclude that the persistent & prolonged exposure under the mobile phone base station is a risk factor.*

What should we do to avoid this… Avoid installation of base station on the top of residential, school, or hospital building.

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4

RATIONALIZE PRACTICE AND REDUCTION OF WORK LOAD AT GENERAL HOSPITAL (RETROSPECTIVE STUDY OF 802 PATIENTS)

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Abstract:

Background: Patients undergo few unnecessary investigations for detection of asymptomatic disease during routine preoperative assessment**. Method: The** aim is to find out unnecessary investigations carried out in elective general surgical patients during the period of March to August 2013. Investigations which evaluated were CBC, RBS, RFT, S. Electrolyte, LFT, ECG, CXR and urine analysis. **Observations** Percentages of unnecessary investigation were calculated. Percentages of abnormal investigations were assessed in the terms of how many patients were required treatments for that abnormal investigations and whether the plan of anaesthesia was changed or not. Only 10-13% of patients showed abnormal values in investigations related to biochemistry while 13.46% of patients of less than 40 years of age showed abnormality in ECG but none of them required any treatment before surgery or did not have any adverse event during peri-operative period. Only 4.18% of patients of more than 40 years of age showed abnormality that required treatment. Only 5.73% of patients aged more than 40 years were needed treatment for abnormal CXR results. **Conclusion**: Investigations Protocol for preoperative patients to reduce workload of hospital is suggested.

Introduction

Patients undergo investigations for detection of asymptomatic disease during routine pre-operative assessment. The probabilities of finding significant abnormalities on such "routine" investigations are small and lead to unnecessary increase work load to the various departments[1]. This may cause harm to the patient due to over treatment for borderline or false positive results. Hence the indiscriminate use of such investigations remains a matter of discussion since the work load may increase with no change in perioperative management[4].

The aim of this retrospective study was to assess the number of unnecessary preoperative investigations in patients admitted for general surgery and thus to minimize the work load of hospital.

Material and Methods

All patients who underwent elective general surgery during the period of March to august 2013 were included. High risk patients of ASA grade III, IV and on emergency basis were excluded. Investigations evaluated were CBC, RBS, RFT, S Electrolytes, LFT, ECG, CXR and urine analysis. Data was collected with the permission of authority. In our institute, the preoperative assessment forms for all elective surgical patients are filled and attached to Indoor case paper. We are having all the records of investigations done and advised or any intervention if needed along with any adverse event occurred intra-operatively. The Data was collected and analyzed using SPSS software. Categorical data were described using mean and standard deviation and compared using unpaired student t test. P value of < 0.05 was considered statistically significant.

Table 1: Characteristic of study population

Characteristic	Number of patients	Percentage (%)
Gender		
Male	379	47.3%
Female	423	52.7%
Age (years)		
Less than 40	556	69.32%
More than 40	246	30.47%
ASA classification		
Grade I	545	67.95%
Grade II	257	32.04%
Surgical grading		
Minor (grade I)	198	24.7%
Major (grade II)	604	75.3%

Table 2: Associated diseases

Characteristic	Number of patients	Percentage (%)
Hypertension	123	15.3%
Diabetes mellitus	73	9.1%
Bronchial asthma	61	7.6%

Ischemic heart disease	43	5.4%

Investigations

Table 3: Biochemistry

Investigations	Normal	Abnormal
	NO. Of pts	NO. Of pts
CBC	716(89.27%)	86(10.27%)
Urine analysis	802(100%)	00(0%)
RFT	742(92.51%)	60(7.48%)
S.Electrolytes	697(86.90%)	105(13.09%)
LFT	705(87.90%)	97(12.09%)

Table 4: According to age

Investigation	Age < 40 years		Age > 40 years		P value
	Normal	Abnormal	Normal	Abnormal	
CBC	534(96.04%)	22(3.96%)	182(73.98%)	64(26.02%)	< 0.05
Urine analysis	556(100%)	00(0.0%)	246(100%)	00(0.0%)	< 0.05
RFT	553(99.5%)	03(0.5%)	189(76.82%)	57(23.18%)	< 0.05
S. Electrolytes	533(95.90%)	23(4.1%)	164(66.66%)	82(33.34%)	< 0.05
LFT	521(93.7%)	35(6.3%)	217(88.21%)	29(11.78%)	< 0.05
CXR	389(69.96%)	167(30.04%)	115(46.75%)	131(53.25%)	< 0.05
ECG	180(86.54%)	28(13.46%)	128(52.03%)	118(47.97%)	< 0.05

Table 5: Chest X ray and ECG

Investigations	Chest X ray	ECG (done in 454 patients)
	No. of patients	No. of patients
Normal	504(62.84%)	308(67.84%)
Abnormal (didn't require treatment)	252(31.42%)	127(27.97%)
Abnormal (require treatment)	46(5.73%)	19(4.18%)

Table 6: surgical procedure

Surgery	Number	Percentage
Inguinal hernia	133	16.58%
Para umbilical hernia	60	7.48%
Hydrocele	57	7.11%
Lap chole+ CBD exploration	78	9.72%
Lap appendicectomy+Open Appendicectomy	121+60	22.57%

Breast surgery	66	8.23%
Circumcision	63	7.86%
Pyelolithotomy	66	8.23%
Excision	79	9.85%
Varicose veins	19	2.37%

Results

Retrospective study was done in 802 surgical patients for analysis of preoperative investigations.

As per table 1,in our study 69.32% of patients were less than 40 years of age and 67.95% of patients were normal and healthy (ASA grade 1). Six hundred and four (75.30%) patients had undergone major (grade 2) surgery.

Only 37.4% of patients had major illness like hypertension, diabetes mellitus, bronchial asthma, ischemic heart disease. (Table 2)

Investigations like CBC, RFT , S. Electrolytes, LFT and Urine analysis were normal in more than 90% of patients having less than 40 years of age.(Table 4)

Only 10-13% of patients showed abnormal values in biochemistry investigations.

In biochemistry investigations, significant abnormality was found with CBC.

In CBC (26.02%) of patients found abnormality in Hb which showed mild anaemia, it was found in patients of more than 40 years of age. It may because our hospital is situated in poor socioeconomic area. (Table 4)

In our study all patients were undergone CXR, out of which 62.84% normal and 37.16% abnormal, out of them only 5.73% of patients required treatment.

ECG was performed in 454 patients, out of which 67.84% normal and 32.15% abnormal, out of them 4.18% of patients required treatment.

None of the patient had shown any perioperative adverse events.

Discussion

Preoperative assessment is a key process in minimizing morbidity of surgery[1]. Several recent articles and editorials have suggested that too many preoperative investigations are performed and that their useful yield is low[3]. These do identify a higher risk group of surgical patients.

Majority of our sample population was healthy patients undergoing grade I (minor) and grade II (major) of surgical procedures. Biochemistry investigations were normal in more than 90% of patients.

Only 13.46% of patients of less than 40 years of age showing abnormality in ECG but none of them required any treatment before surgery or did not have any adverse event during perioperative period. In more than 40 years of age, 47.97% of patients showed abnormality and out of them 4.18% of patients required treatment for that. So it is advisable to do ECG in more than 40 years of age to rule out cardiac problem.

CXR was abnormal in 30.04% of patients in less than 40 years of age and 53.25% of patients in more than 40 years of age though only 5.73% of patients aged more than 40 years of age were needed treatment for that. This higher number of abnormality is because of endemicity of tuberculosis in our country[2]. A National study by the Royal college of Radiologists in 1979 proposed that routine CXR should be performed where the prevalence of undiagnosed chest condition is likely to be high[5].

This study confirms that only a few numbers of abnormal results were found from routine preoperative investigations in 802 patients admitted for elective surgery.

It was observed that most of the time investigations for surgery were advised by surgical resident in the OPD before referring the patient to anaesthesiologists, and they advised all investigations available in hospital so that there is no chance of postponement of the patient and patient gets operated as early as possible.

Age was significantly associated with incidences of abnormal results and complications[3]. In this study age was found as best indicator of excluding routine investigations in surgical patients[3].

Routine complete blood count seems unlikely to be fruitful in asymptomatic patients younger than 40 years. Low haemoglobin was the only significant haematological abnormality noted.

Investigations related to biochemistry had an extremely low yield of abnormal results in routine surgical patients. From our findings routine testing seems to be indicated only in patients over 40 years of age posted for major surgery [3].

Conclusion

A large number of healthy young patients are admitted for surgery and we have shown clearly that they do not require routine tests. So that each unit or hospital should establish a protocol regarding routine preoperative investigations in order to maximise the yield from these tests and prevent waste of resources and work overload.

We recommend the following remedies

1. Education of surgical and anaesthetic teams on current practices [1].
2. Adoption of guidelines on preoperative investigations aiming to modify existing practices [1].
3. To develop a preanaesthetic clinic in the institution.

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5

"A COMPARATIVE STUDY OF INTRATHECAL CLONIDINE WITH DEXMEDETOMIDINE IN LOWER ABDOMINAL AND LOWER LIMB SURGERIES"

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ABSTRACT

Introduction and objectives: Present study was designed to evaluate Efficacy of two different α2 agonists Clonidine (45 µg) and DXM(5µg) as a adjuvant to intrathecal Hyperbaric Bupivacaine 0.5%. **Aims & objectives** of study: to Compare the onset of sensory and motor block. Compare the duration of sensory and motor block. Assess the duration of effective postop analgesia .Compare haemodynamic changes. Observe adverse effects.

Material & Methods: We have given spinal anaesthesia for lower abdominal & lower limb surgeries with clonidine &DXM as adjuvant. **Observation:** Both clonidine & DXM delays sensory& motor onset, prolongs duration of sensory& motor analgesia, and postoperative analgesia as compare to Bupivacaine group with minimum haemodynamic changes. **CONCLUSION :** Both clonidine & DXM can be used as adjuvant to bupivacaine for prolonged analgesia.

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INTRODUCTION

Multimodal Techniques are available for Lower abdominal and Lower Limb surgeries. These surgeries can be conducted under local, regional (spinal or epidural), peripheral blocks or general anaesthesia, but neuraxial blockage is more preferred mode of anaesthesia.

Spinal anaesthesia is still the first choice because of its advantage like rapid onset, superior blockage, less failure rates and cost effectiveness, but has the drawbacks of shorter duration of blockage and lack of postoperative analgesia. In recent years, use of intrathecal adjuvant along with local anaesthetic agent has gained popularity with the aim of prolonging the duration of blockage, better success rate, patient satisfaction and faster recovery.

Bupivacaine is the most commonly used local anaesthetic agent having satisfactory sensory and motor blockade with limited duration of action. Various intrathecal adjuvants have been tried with local anaesthetic agent to prolong its duration of action. Various adjuvants that are added to local anaesthetic agents are adrenaline, phenylephrine, opiods, α_2 agonists, neostigmine, Ketamine, magnesium sulphate.

For the past two decades, the anaesthetic use of adrenergic α_2 agonists has been of considerable interest. Clonidine has been successfully used as an adjuvant with preservation of cardiovascular reflexes, reduced post op analgesic requirement and prolongation of the duration of Bupivacaine induced sensory and motor blockade.

Dexmedetomidine (DXM) is a highly selective α_2 agonist drug. DXM has been used in the epidural space in humans without any reports of neurological deficits.[19,35] Based on earlier human studies, it is hypothesized that intrathecal 5µg DXM would produce more postoperative analgesic effect with Hyperbaric Bupivacaine in spinal anaesthesia with minimal side effects.[1,2]

This study was undertaken to evaluate and compare the efficacy and potency of intrathecally administered Bupivacaine, Bupivacaine with Clonidine and Bupivacaine with DXM for onset and duration of sensory and motor block, hemodynamic stability, duration of effective analgesia, including post op analgesia and any adverse effects with each combination in patients undergoing lower abdominal and lower limb surgeries.

- **MATERIALAND METHODS**

The present study was conducted in 75 patients of ASA grade I and II, aged 20-60yrs, scheduled for elective lower abdominal and lower limb surgeries after taking written informed consent.

The patients were randomly allocated in 3 groups, each having 25 patients.

Group A: 0.5% Hyperbaric Bupivacaine 3ml (15mg) + 0.9% Normal saline 0.3ml.

Group B: 0.5% Hyperbaric Bupivacaine 3ml (15mg) + 0.05ml DXM (5µg) + 0.9% Normal saline 0.25ml.

Group C: 0.5% Hyperbaric Bupivacaine 3ml (15mg) + 0.3ml (45µg) Clonidine . Measured amount of Normal saline, DXM and Clonidine are taken with 1ml tuberculin syringe. In all groups total 3.3 ml volumes given. Detailed preoperative history and physical examination of patient was done. Written inform consent was taken. Patient having history of allergy to any drug or contraindications for spinal anaesthesia is excluded from study. Laboratory investigations like CBC, blood sugar, Renal function tests ,serum electrolytes, x ray chest, ECG were reviewed Procedure was explained to the patient and patient was informed to communicate about the perception of any discomfort or pain during surgery. Patient was explained about VAS score with 1 to 10 scales. Written informed consent was taken from the patients and his/her relatives. All patients were Nil by Mouth for 6 hours.

In the operation theatre:

- IV line taken and each patient were preloaded with 10ml/ kg of Ringer's lactate solution before procedure.
- Pulse oximeter, non-invasive blood pressure monitoring and ECG were attached and base line reading taken.

Equipment:

- Cotton swabs with swab holding forceps.
- Disposable 23G lumber puncture needle.
- Disposable 5 cc syringe, tuberculin syringe.
- An ampoule of Hyperbaric Bupivacaine 0.5% , Clonidine, DXM and 0.9% NS

Technique:

- Under all strict aseptic and antiseptic precaution, with patient in left lateral position lumber puncture was performed at L2-L3 or L3-L4 intervertebral space with 23G Quincke needle and selected drug was given slowly. After completion of procedure, patient was immediately turned to supine position. Time of subarachnoid injection of drug was noted. Pulse, BP, SPO_2 and RR were recorded every 1, 5, 10, 15, 20, 25, 30, 45 and 60 minutes after giving spinal anaesthesia and then every 30 minutes till the completion of surgery.

Evaluation:

- The onset and duration of sensory blockade was assessed by using pinprick test every 1 minute till 15 minutes. Then at 20, 30, 45 and 60 minutes and then every 30 minutes till completion of surgery.
- Onset of sensory blockade: Time required to produce loss of pinprick sensation at the level of sensory dermatome T10 were noted. Motor blockade was assessed by modified bromage score.
- Time for onset of grade 3 motor blockade was noted.
- Time for sensory regression to S_2 was noted.
- Time for motor regression to bromage 0 was noted.
- After establishment of adequate level of block, surgery was started and time of beginning of surgery was noted.
- Onset of motor blockade (Time required to produce grade 3 motor block) and duration from grade 3-0 was noted .
- IV fluids were administered depending on the weight of patient and replaced according to loss during surgery.
- Total duration of analgesia: Time to sensory regression up to S2 dermatome (mins).
- Patients were observed for any intraoperative complications like bradycardia, hypotension, sedation, shivering, nausea, vomiting, dryness of mouth and respiratory depression.
- Hypotension was defined as systolic blood pressure <90 mmH_g or > 30% decrease in baseline value.
- Tachycardia was defined as heart rate >100/mins and bradycardia was defined as heart rate < 60/mins.
- After surgery, patients were monitored every hourly for 12 hours.
- Postoperatively pain measurement was assessed by VAS scale. And First rescue analgesic was given in the form of inj. Tramadol(1mg/kg)iv and inj. Ondansatron (0.08mg/kg)iv when VAS was > 3.statistical analysis was done using SPSS software. Data was expressed as mean and standard deviation. Data were compared using analysis of variance (ANOVA). P value < 0.05 considered statistically significant and P<0.001 considered highly significant.

OBSERVATION AND RESULTS

The present clinical comparative study included 75 patients, of lower abdominal and lower limb surgery,25 in each group. All the patient belonged to ASA grade I and I: **All**The three groups

were comparable with respect to age, height, weight and sex ratio. There was no statistically significant difference between 3 groups with regard to Age, Height, Weight ,sex ratio(p>0.05).

The mean duration of surgery was 90.5±23.5 min in group A , 91.6±21.4 minutes in group B and 91.5±21.1min in group C which was comparable. There was statistically insignificant difference among all 3 groups with regard to duration of surgery(P>0.05)The mean time to achieve T_{10} sensory level was prolonged in group C(7.15±0.6) min as compared to group A (4.30±0.7) min and group B (6.65±1.2) min, which was statistically significant (P value < 0.05). There was no statistical significance between group B and group C (P value > 0.05). The mean time to achieve modified bromage scale was III prolonged in group C (9.00±0.6) min as compared to group A (5.1±0.8) min and group B (8.35±1.0) min which was statistically significant (P value < 0.05). There was also statistical significance between group B and group C (P value<0.05).

TABLE-1: DURATION OF SENSORY AND MOTOR BLOCKADE

TIME (minutes)	**Group A (Mean± SD)**	**Group B (Mean± SD)**	**Group C (Mean± SD)**	**P value**
Sensory regression to S_2 from highest sensory level	214.5±25.4	319±24.3	330±14.6	A VS B<0.05 A VS C<0.05 B VS C>0.05
Motor regression to bromage scale 0	194.5±26.2	295±22.4	300.2±13.1	A VS B<0.05 A VS C<0.05 B VS C>0.05

The baseline pulse rate was comparable in all 3 groups. The pulse rate in group B was slightly lower as compared to group A and group C from 30 mins to 120 mins after subarachnoid block. There was no statistically significant change in pulse rate between 120mins to 12hrs postoperatively among all three groups. The baseline BP was comparable in the three groups. The mean arterial BP was slightly lower in group B as compared to group A from 25mins to 180mins and group C from 30mins to 120 mins after subarachnoid block. There was no statistically significant difference thereafter up to 12 hrs post operatively.

TABLE-2: DURATION OF POST OPERATIVE ANALGESIA

	Group A	**Group B**	**Group C**
No. of patients	25	25	25
Duration of analgesia (mins)	100-150	180-230	200-250

Mean ± SD (mins)	125.5±12.5	205±15.3	220.2±15.5

The difference in the duration of effective analgesia between the three groups was statistically highly significant (P value < 0.05). The duration of effective analgesia was significantly lower in Group A compared to group B and C. Also the duration of effective analgesia in group C was significantly higher than in the group B and group A. The incidence of hypotension was 16% in group A,12% in group B and 8% in group C. The incidence of bradycardia was 12% in group A,8 % in group B and 4% in group C and Shivering was noted 8% in group A, 4% in group B and 4% in group C. There was statistically insignificance between all three groups.(p>0.05) There was no incidence of nausea, vomiting, dryness of mouth, respiratory depression in any of the groups. Time to first rescue analgesic was prolonged in group B (385 ± 12.2) min and Group C (390 ± 8.1) min patients as compare to Group A (260 ± 10.7) min patients.P value (AvsB and AvsC is <0.05).sedation score between three groups. Was measured. In group A 88% patients were awake, 12% patients were sleeping comfortably but easily arousable. While in group B and group C 76% and 72% patients were awake respectively, 16% and 24% were easily arousable, 8% in group B and 4% in group C in deep sleep.

DISCUSSION

Spinal anaesthesia is the preferred anaesthesia technique for lower abdominal and lower limb surgeries. Bupivacaine is the most commonly used local anaesthetic in spinal anaesthesia. The use of adjuvants with local anaesthetics provides prolonged and superior quality of anaesthesia and postoperative analgesia with relatively small doses of individual drugs with less requirement of postoperative analgesia.

We evaluated the time taken for the onset and duration of sensory and motor blockade, hemodynamic stability, duration of analgesia and adverse effects in each study group.

- **Effect on onset of sensory block:**

  Mean time of sensory onset in group A (4.30±0.7) min was significantly lower than group B (6.65±1.2) min and group C (7.15±0.6) min. There was no significant difference between group B and group C.contrary to our study, B.S.Sethi et al[9] in his study with 60 patients evaluated the effect of low dose 1µ/kg, intrathecal Clonidine as faster onset in Clonidine group compared to Bupivacaine groups Shukla D. et al[10]. concluded that the onset time of sensory block upto T10 dermatome was rapid with DXM .

Effect on onset of motor block:

Mean time of onset of grade 3 motor block was significantly higher in group B and C than group Awhich was comparable with study of Shukla D. et al[10] for DXM and Gurudatta et al[3] **for clonidine. Effect on duration of sensory and motor block:**

- mean time of duration of sensory block and motor blockade was prolonged in group B and group C.Similar to our study, Kanazi et al[6]. Concluded that intrathecal DXM (3µg) or Clonidine (30µg) when added to intrathecal Bupivacaine produces a similar prolongation in the duration of the motor (250±76) min and sensory block (303±75) min.

- **Hemodynamic changes:**
  - Preoperatively there was no significant difference in mean pulse rate, MAP, RR and SPO_2 between 3 groups. Incidence of hypotension was 16% in group A, 12% in group B and 8% in group Coincidence of bradycardia was 12% in group A, 8% in group B and 4% in group C. The mean arterial blood pressure was significantly lower in group B as compared to group A from 25mins to 180mins and group C from 30mins to 120 mins after subarachnoid block. Al Ghanem et al.[1] studied concluded that small dose of intrathecal DXM did not produce bradycardia and hypotension.
  - L. Neimi et al[7] found that among Clonidine group (3µg/kg) mean arterial pressure and heart rate were significantly lower in the Clonidine group compared to the control group.
  - **Perioperative adverse effects:** No incidence of nausea, vomiting, dryness of mouth or respiratory depression in any group. Incidence of shivering was 8% in Group A,4% in Group B,4% in Group C.
  - R. Verma et al8 compared 5µg DXM vs 25µg Fentanyl with 12.5 mg Hyperbaric Bupivacaine and reported no complications
  - B.S. Sethi et al9, The results of their study showed that addition of 1µg.kg-1of Clonidine to intrathecal Bupivacaine is safe and likely to be as effective as higher dosages minimizing the side effects.
- **Duration of effective post operative analgesia**
  - duration of analgesia in group B (205±15.3) min and group C (220.2±15.5) min was significantly higher as compared to group A(125.5±12.5) min. Duration was higher in group C as compared to group B.Gurudatta et al[3] in this study demonstrated the duration of complete analgesia with 75 µg of intrathecal Clonidine was 327min compared to 207 minutes in Bupivacaine group which was highly significant.
- **TIME TO FIRST RESCUE ANALGESIC IN MINUTES:**

- Time to first rescue analgesic was prolonged in group B (385 ± 12.2) min and Group C (390 ± 8.1) min patients as compare to Group A (260 ± 10.7) min patients.P value (AvsB and AvsC is <0.05) Kaabachi O et al[5] in 2007 studied Clonidine (1 µg/kg) as an adjuvant to Bupivacaine in spinal anaesthesia and found that time to first dose of rescue analgesic was longer in the adolescents with Clonidine 461±147 min.

- **SEDATION SCORE:**
  - . In group A 88% patients were awake, 12% patients were sleeping comfortably but easily arousable. While in group B and group C 76% and 72% patients were awake respectively, 16% and 24% were easily arousable, 8% in group B and 4% in group C in deep sleep.B.S. Sethi et al[9] in 2007 studied intrathecal Clonidine and observed that 16 out of 30 patients were sleeping comfortably and were easily arousable.

CONCLUSION

In nut shell, DXM (5µg) or Clonidine(45µg) seems to be an attractive, alternative as adjuvant to intrathecal Bupivacaine, markedly prolongs duration of sensory and motor blockage, provides excellent quality of postoperative analgesia with minimum haemodynamic changes and adverse effect

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6

THE HEMOSTATIC MECHANISMS IN PIH

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ABSTRACT:

INTRODUCTION: Pregnancy induced hypertension (PIH) is a major complication of pregnancy and is one of the major causes of maternal mortality and perinatal complications. Changes in coagulation system in established preeclampsia are well documented. Out of all haematological changes that occur in preeclampsia, thrombocytopenia is the most common.[2] the parameters studied in the present study support the aetiopathogenesis of clinical manifestations & help to reduce further fetal and maternal complications. **AIMS & OBJECTIVE:** To assess the association of bleeding time, Clotting time and Platelet count with PIH.**MATERIALS AND METHODS:** 30 diagnosed cases of preeclampsia blood pressure > 140/90mmHg & proteinuria

>300mg/l in 24hour after 20 weeks of gestation. 30 age, parity and gestation matched normotensive pregnant women subjects were taken for the study. Bleeding time, Clotting time and Platelet count were measured. Statistical analysis was done by using student't' test between the two groups. A p-value less than 0.05 were considered as significant. **RESULTS:** Bleeding time and clotting time were prolonged in PIH but was not statistically significant. The platelet count is decreased in PIH which is statistically significant**CONCLUSION:** Prolonged bleeding time may be due to generalized vasoconstriction. Prolonged Clotting time was due to further depression of fibrinolytic activity. The lower platelet count in preeclampsia is associated with abnormal activation of coagulation system & is believed to reflect increased platelet consumption.

KEY WORDS: Pregnancy induced hypertension (PIH) Bleeding time (BT), Clotting time (CT) , Platelet count

INTRODUCTION:

Quality of life for mother and newborn has become our most important concern now days. PIH is a poorly understood condition of human pregnancy, which can affect multiple organs and is a leading cause of maternal mortality worldwide[1]. PIH is a clinical manifestation characterized by hypertension, proteinuria and oedema that occurs after 20th week of pregnancy[2]. It is suggested that PIH is associated with intervillous and spiral artery thrombosis, vascular endothelial damage and abnormalities of coagulation, leading to inadequate maternal, fetal and placental circulation[3]. The most common cause is uteroplacental under perfusion leading to decreased fetoplacental prostacyclin. Elevated maternal thromboxane/prostacyclin ratio leads to increased sensitivity to Angiotensin II, arterial vasoconstriction and subsequent elevation of blood pressure. Intravascular
Coagulation Changes in coagulation system in established preeclampsia are well documented[4]. Out of all the haematological changes that occur in pre-eclampsia and eclampsia thrombocytopenia is the most common haematological abnormality found [5]. The degree of thrombocytopenia increases with the severity of disease. Lower the platelet count, greater are maternal and foetal mortality and morbidity[6]. Very few studies are present on this ground in our country. Therefore the present study is designed to assess the association of Bleeding time, Clotting time , Platelet count with PIH.

MATERIALS AND METHODS: The present study was carried out at Navodaya Medical College and Research centre, Raichur. The study and its conduct were cleared by the human ethical clearance committee. 30 diagnosed cases of PIH blood pressure > 140/90mmHg & proteinuria >300mg/l in 24hour after 20 weeks of gestation. The diagnosis was made on brief clinical history, B.P. and urine examination for protein.30 age (20 to 30 yrs), parity and gestation matched normotensive pregnant women subjects were taken for the study. Detailed history was taken to exclude anaemia and high risk factors like cardiovascular disease and diabetes. Special attention was given to exclude hemorrhagic disorders, renal and hepatic disorder and history of drug intake, which can affect platelet count. Blood pressures were measured by

sphygmomanometer. After obtaining informed written consent from the study subjects and maintaining all aseptic precautions, 3 ml of blood was drawn from ante-cubital vein and collected in an EDTA containing tube. The haematological investigations were performed on a fully automated Orphee Mythic- 18 three part differential cell counter.

OBSERVATION & RESULTS:

Statistical Analysis: Was performed by using computer based software, Statistical Package for Social Science (SPSS) for Windows version 14.0 Mean values of different parameters were compared to determine the differences between two groups by using Student's unpaired't' test. A p-value less than 0.05 were considered as significant. Maternal age and body mass index (BMI) were not significantly different between the groups ($p>0.05$). Systolic and diastolic blood pressures were significantly higher in PIH groups as compared to healthy normal pregnant women ($p<0.001$). Bleeding time and clotting time were prolonged in PIH but was not statistically significant. The platelet count is decreased in PIH which is statistically significant.

Table1. Bleeding time, Clotting time ,Platelet count of normal pregnant women & PIH patients

Parameters	Normal pregnancy	PIH	Mean difference	95% CI of difference	t-value	p-value
Bleeding time	2.49 ± 0.18	2.55 ± 0.27	0.06	-0.04 – 0.16	1.18	0.24NS
Clotting time	5.17 ± 0.84	5.48 ± 0.95	0.31	-0.15 – 0.77	1.34	0.18NS
Platelet count lac/mm	2.41 ± 0.47	1.93 ± 0.38	0.48	0.26 – 0.7	4.35	P<0.001

NS- Not significant.

DISCUSSION: A transient mild thrombocytopenia is seen due to increased platelet consumption during pregnancy[7]. Thrombocytopenia is found in approximately 6% of pregnancies[8] and most common cause of thrombocytopenia in pregnancy is preeclampsia and eclampsia[9]. A continuous decline in platelet count as pregnancy advances was shown by Fay
et al (1983). Pitkin R.M., Whittle D.L.(1979) indicated that there is possibility of platelet hyper destruction during pregnancy. This together with hemodilution and platelet trapping results in decreased platelet count[10]. There is increasing evidence that abnormal enhancement of coagulation activity is involved in the pathogenesis of PIH[11]. Although the pathogenesis of thrombocytopenia in preeclampsia is not clear, but it is suggested that it may be due to endothelial damage and the peripheral consumption. The life span of platelet reduced to 3-5 days and the altered platelet membrane accelerates its aggregation and destruction[12]. The results from our study concluded that preeclamptic groups as compared and normal pregnant groups showed significantly lower platelet count with the statistical difference of $p<0.001$. These results were in

consistent with the results given by S. Mohapatra et al[13]and Mindora Onisai, Ana-Maria Vladareanu, Horia Bumbea et al[14]. However, Kulkarini and Sutaria did not observe any significant difference in respect to platelet count in their study[15]. The same results were shown by Mathur et al (1980), Keehan and Bell (1957) .They also observed decrease in platelet count their study due to increased consumption and destruction of platelets[16,17]. Thrombocytopenia observed in Eclampsia was attributed to increased platelet adhesiveness by McKay et al (1964)[18] whereas persistent impaired platelet disaggregation was shown by Howie et al (1971)[19]. The Bleeding time showed an increase but it was not statistically significant. The increase observed was may be due to generalized vasoconstriction. [Dube et al(1975), Talib et al (1993)] The increase is always associated with thorombocytopenia[20,21]. Kelton et al (1985) reported same finding concluding that the increase may be due to impaired Thromboxane synthesis. Increased Bleeding time with thrombocytopenia may alter the coagulation process. [Pritchard et al (1984)]The study showed increase in Clotting time which was not statistically significant[22]. Bellar et al (1977) showed the consistent increase in Clotting time with increase in severity of disease [23].Distinguishing PIH from other causes of abnormal screening results would aid doctors in the diagnosis and prompt treatment of their patients. These findings suggest that there is an excessive hypercoagulable state in PIH and are involved in pathogenesis of the condition Therefore, Platelet count may be used as simplest, cheapest and earliest indicator of PIH.

CONCLUSION & SUMMARY: The Bleeding time in our study was seen to be increased but not to statistically significant level. Prolonged bleeding time may be due to generalized vasoconstriction. Prolonged Bleeding time is associated with thrombocytopenia so it may be due to impaired synthesis of thromboxane. The Clotting time was also seen to be increased but not to statistically significant level. Prolonged Clotting time was due to further depression of fibrinolytic activity. Accumulation of fibrinogen derivatives and alterations in the clotting mechanisms also contribute to the increase. The lower platelet count in preeclampsia is associated with abnormal activation of coagulation system & is believed to reflect increased platelet consumption, decreased platelet life span, decreased prostacycline synthesis & immunological mechanisms. The information of the present study might enrich the knowledge of clinician for early identification of preeclampsia. This is important for management of both PIH mother and the newborn.

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7

EVALUATION OF DIFFERENT POINTS OF TRAGUS AS POSTERIOR REFERENCE POINT FOR CAMPER'S PLANE: A PHOTOGRAPHIC ANALYSIS.

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Abstract:

Aim and objectives: The study was undertaken to determine the most reliable ala-tragus line as a guide for the orientation of the occlusal plane in edentulous subjects. **Methodology:** Photographic analysis was made for 50 adult dentate patients using fox plane to determine the orientation of the occlusal plane. Three points were marked on tragus as T1, T2, T3, ala of nose as A, the fox plane was compared with these three lines to check the closest parallelism. The obtained results were subjected to ANOVA F test, Tukey's Honestly significant difference test, followed by Karl Pearson coefficient of correlation test. *P* values of less than 0.05 were taken as statistically significant. **Results:** Occlusal plane was found more parallel to AT3(camper's III) plane that is to the inferior point of the tragus with the mean value of angle of 2.96° deviation from parallelism to occlusal plane .**Conclusion:** The line joining alaof the nose to the lower border of the tragus can be used as a reliable posterior reference point of Camper's plane to orient the occlusal plane in edentulous subjects.

INTRODUCTION:

Complete denture prosthodontics is challenging because rehabilitation of edentulous patients with complete dentures has to be done by consideration of various biological and mechanical factors while restoring the functions and health of the stomatognathic system. A proper occlusion with fulfillment of all

the criteria plays a salient role in deciding the prognosis of completely edentulous patients[1].In both natural and artificial dentitions, the plane of occlusion plays an important role in fulfilling the function and esthetics. Occlusal plane is defined as the average plane established by the incisal and occlusal surfaces of the teeth (GPT)[2]. Various intraoral and extra oral landmarks have been used to determine and orient the occlusal plane. Occlusal plane can be oriented to coincide with intraoral landmarks like the lower one-third of the retro molar pad[3] or lateral borders of the tongue[4].Other suggested theories include: occlusal plane should be at a distance of 2.56 mm below the parotid papilla[5];occlusal plane should be 1.37 mm above the commissural of lip[5]; occlusal plane can be established 0.94 mm above the buccinators grooves [5];occlusal plane can be established parallel to Hamular-incisive-papilla plane[6]; and, one of the newer concepts of establishing occlusal plane suggest placing it parallel to and mid-way between the residualridges[7]. Extra-oral landmarks suggested include: Anteriorly, occlusal plane should be parallel to inter pupillary line and 1-3 mm below the resting upperlip[8]; Camper's line is an anthropologic measurement on skulls projected to the living head as a line passing from the alae of the nose to the center of the tragus of the external auditory meatus. Posterior; parallel to alatragal lines - a line running from the inferior border of the ala of the nose to some defined point on the tragus of the ear, usually considered to be the tip of the tragus. Ideally, the alatragusplane is considered to be parallel to the occlusal plane. Even though the alatragal line (Camper's line) is the most commonly used landmark and the only extraorallandmark used to establish posterior occlusal plane in edentulous subjects, its use still remains controversial. This controversy is primarily due to the disagreement on the exact point of reference on the tragus (superior, middle or inferior) to establish the alatragal line. Thus the present study was undertaken to establish the most reliable posterior reference point of ala-tragus line for its use as a reference plane for establishing plane of occlusion in edentulous subjects.

Material & Methods

Different prosthodontists have given opinion for and against the use of various methods to determine the occlusal plane and the ala-tragal line. In this study, photography was used to determine the occlusal plane in dentulous subjects. To fulfill the objective of this study and simplify the procedures, well-established landmarks, terminology and equipment have been used.

The study was conducted on subjects who were out patients and students of an institution. A total of 50 Indian subjects within the age group of 18-40 years were selected for the study. Selection Criteria include: Straight or orthognathic profile, no previous history of orthodontic treatment, no congenitally missing or extracted teeth, subjects with complete dentition without crowns, fixed or removable partial dentures or supernumerary teeth or retained teeth, no deciduous teeth, regular alignment of teeth without any supra-eruption or drifting i.e. well formed occlusion, no congenital or acquired defects in the head region, absence of advanced periodontal diseases and associated tooth mobility, exclusion of TMJ disorder if any and a minimum of conservative treatment and that too not in incisors and molars.

The objectives and method of obtaining the photographs were explained to each subject and an informed consent was obtained from them. Digital camera with 4× optical zoom was used which stores the photographs digitally that can be later transferred to the computer. The camera has resolution of 14.1 Mega pixels, which is more than adequate for computer analysis. The in-built zoom lens with an auto focus range to infinity ensured that the image were of high quality. A modified Trubyte occlusal plane plate (Fox Bite plane) was placed in the mouth in such a position that it touched the incisal edges of the upper central incisors, and the cusps of the left and right upper first molar. The plane was thus located in a position that is equivalent of the occlusal plane of orientation used in the construction of complete dentures. The fox plane was held in position by pressure of thumb. The outer wings of the plate indicate the position of the occlusal plane and these are readily seen in the photograph. The dots on superior, middle and inferior margins of the right tragus and lower point of ala of nose were directly marked on the image in computer (fig 1). Photographs were taken with the subject standing and in their natural head position.

The perpendicular distance between the subject's sagittal plane and lens of camera was standardized at 1.5 meters. A life-size lateral digital photograph of the face with fox bite plane in mouth with patient holding it in position by thumb was taken. The following points were then digitized on all the photographs on the computer.

- The superior margin of the Tragus (T1)
- The middle margin of the Tragus (T2)
- The lower margin of the Tragus (T3)

• Lowest part of the ala (A) of nose.

• Camper's plane or the ala-tragus line is a line drawn from the lowest part of the ala (A) to the tragus.

Three points on the tragus were marked and three lines were drawn accordingly i.e.

- From Ala (A) to upper margin of tragus (T1) i.e. AT1- Camper's I

- From Ala (A) to middle margin of tragus (T2) i.e. AT2- Camper's II

- From Ala (A) to lower margin of tragus (T3) i.e. AT3- Camper's III

• A line is drawn extending from the outer wing of fox plane, which is comparable to occlusal plane i.e. OP.

Of the three angles formed by the occlusal plane and the ala-tragal lines, the one closest to the angle formed between ala tragus line and occlusal plane (OP) was used to determine the occlusal plane of orientation(fig 2). The computer software, AutoCAD 2004, was used to calculate the angles. The above points were digitized three times and the averages of the three readings were calculated. Comparison among the groups was done by ANOVA (analysis of variance) Fisher 'F' test. Inter comparison between the groups was done by Tukey'sHonestly significant difference test. The correlation between the groups was found out by using Karl Pearson coefficient of correlation test. *P* value was used to find out level of statistically significance where *P*<.05-significant, *P*<.01-highly significant. These were done using SPSS statistical package version 11.5.

Results

Table 1 show that the occlusal plane was most parallel in 50% subjects with AT3.

34% subjects had occlusal plane parallel to AT2. While coincidence with AT1 was found only in 16% subjects.

Table 2 shows Occlusal plane angle formed between the occlusal plane and Camper's plane had the lowest mean value in the angle formed with AT3, which represents the measure taken from the inferior border of tragus of the ear with a score of 2.94°. The highest mean angle was measured in the angle formed with AT1, with score of 5.06°, while the mean angle formed with AT2 was 3.76°. The differences between the three planes in relation to the occlusal plane were found to be significant.

Discussion

Determining the plane an occlusion is of utmost important step incomplete denture therapy as it influences the denture stability and hence balanced occlusion. The position of the occlusal plane of orientation also forms the basis for ideal tooth arrangement and fulfills the necessary mechanical, esthetic and phonetic requirements and aid respiration and deglutition. Standard facial measurements are essential for establishing the level of occlusal plane. There are no specific intraoral or extra oral anatomical landmarks available so its determinations prone to subjective variation. Based on the biomechanical and physiological considerations, when teeth are present musculature of the tongue and cheeks are trained to function normally at this level and will again function correctly when the occlusal table is again organized at same level. This will stabilize the bolus of food at the same vertical position of the occlusal table as originally existed. The use of the ala-tragus line (Camper's line) as guideline has gained popularity within the profession since it is easily visualized, thus making the determination of plane of occlusion more convenient. Occlusal plane oriented with camper's plane favor esthetics, transmit the desired force on the ridge and permit comfortable control of food morsels by tongue and the cheeks. Faulty orientation of occlusal plane will hamper the balance between tongue and buccinators muscle resulting in food accumulation in sulcus and /or biting of cheek or tongue. If occlusal plane is too high, then it forces the tongue in new position which causes rising of floor of the mouth. This creates undue pressure on border of the flange. Many studies have been carried out to determine the relationship between the plane of occlusion and the Camper's plane. Most of the controversy revolves around which tragus reference is to be considered as a posterior landmark during orientation of the plane of occlusion.

Glossary of Prosthodontic Terms states that the Camper's line runs from the inferior border of the ala of the nose to the superior border of the tragus. It is also called Bromell's plane or prosthetic plane[9].Solomon et at.[10]is in favor of superior point as the reference point. According to the findings of this study, superior border of the tragus is the most suitable landmark to orient the occlusal plane, forming a stop anteroposteriorly following the curve of the ramus of the mandible, and establishing a curve that would serve the artificial teeth to be set in a way to prevent any interferences that would dislodge the denture during protrusive movement, making the dentures more stable and ensuring satisfactory service. Most of the textbooks of prosthodontics and other authors like Pratley, Basker, Grant and Johnson, and

Neill and Naim supported the center of tragus as the posterior landmark[11]. Ismail and Bowman[8] found that dentures constructed with center point in consideration have very low occlusal plane. Contradictory statement by Abrahams and Carey [12] stated that occlusal plane of complete dentures conforming to a line oriented to the superior border of the tragus results in the occlusal plane being leveled far too high posterior.

Clapp[13] (1910), Dalby[13] (1912), Wilson[13] (1917), Hartono[14] (1967), van Niekerk[15] (1985) and Karkazis and Polyzois[15] (1986) have concluded from their studies that inferior point of tragus is more reliable for adjusting occlusal plane.

It has been found (Nagle[16] and Sears[17]-1962 & Swenson [18]-1947) that in case of excessive resorption, the plane should be placed closer to the resorted ridge to reduce the leverage. It should be perpendicular to the forces of mastication and should be developed parallel to the lower ridge. If occlusal plane is parallel to the lower border of the tragus then the forces of mastication will be perpendicular to the occlusal plane and there will be less leverage on the lower residual ridge which is most commonly involved in resorption process (Jacobson and Karol [13]-1983) and results in denture stability. The occlusal plane placed high in relation to lower ridge result in additional leverage and denture instability (McGee[19]-1960). Photographic study was chosen as it is non-invasive and simple. In contradiction to cephalometric study, there is no radiation exposure and minimal magnification errors. The simulation of occlusal plane in edentulous subjects, as is found in most of the dentate subjects can be used with reliability to confer adequate masticatory efficiency in edentulous patients.

Conclusion:

The inferior border of tragus can be used as a reliable posterior landmark for the orientation of posterior occlusal plane in edentulous subjects.

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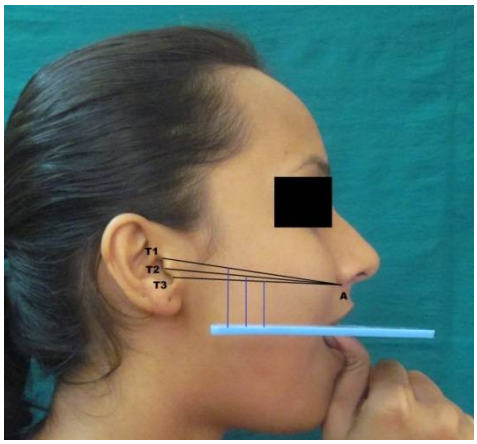


FIGURE 1- Showing most parallelism of occlusal plane with AT3 plane

FIGURE 2- Showing deviation of occlusal plane with AT3 plane

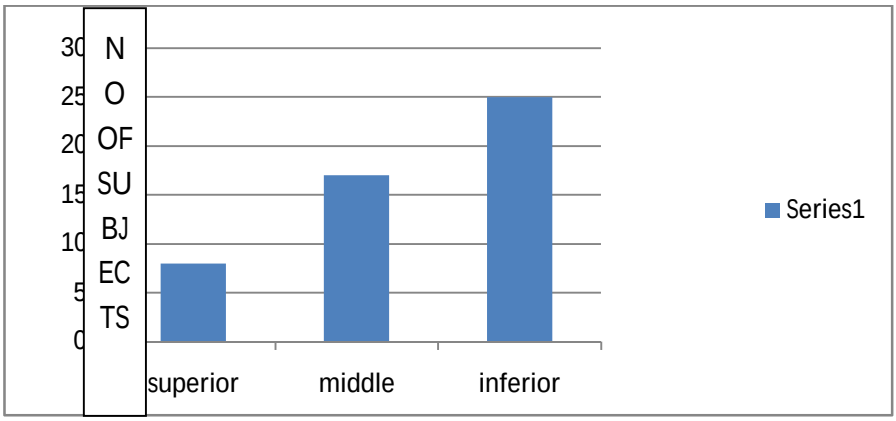
TABLE 1

No of subjects	Superior	Middle	Inferior
50 (100%)	8(16%)	17 (34%)	25 (50%)
P value	<.05	<.05	<.05

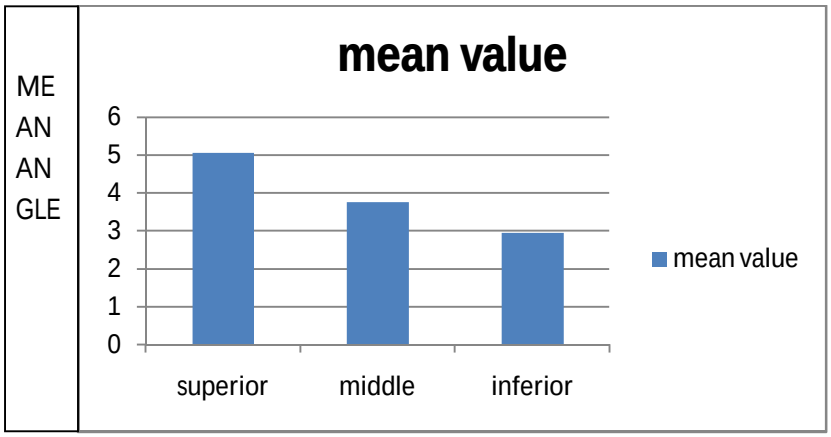
TABLE 2

	Mean	Maximum	Minimum	numbers
AT1	5.06	12	1	50
AT2	3.76	13	0	50
AT3	2.94	9	0	50

HISTOGRAM 1



HISTOGRAM 2



Mean value of angle between occlusal plane and three ala tragus lines.

8

COMPARISON OF LIPID PROFILE IN DIABETIC AND NON DIABETIC MALE AND FEMALE BELOW AND ABOVE THE 45 YEARS OF AGE GROUP

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ABSTRACT

INTRODUCTION: Incidence of diabetes mellitus in human population has reached epidemic proportions worldwide, and it is increasing at rapid rate. Many large scale analyses have demonstrated a nearly linear correlation between the total cholesterol and low density lipoprotein (LDL) cholesterol and the severity of atherosclerosis. It has also been seen the inverse relationship between symptomatic atherosclerosis and the high density lipoprotein (HDL) cholesterol level.
OBJECTIVE: The goal of our study is to estimate blood sugar, total cholesterol, HDL and LDL level in male and female. **METHOD:** 40 male and 40 female are below the 45 years of age and 40 male and 40 female are above the 45 years of age. In the present study 80 normal individuals (Controls) and 80 diabetic patients suffering from Non-insulin dependent diabetics mellitus have been investigated. The entire subject were instructed about study and written consent taken. History and clinical examination was done .Blood sugar, total serum cholesterol, serum LDL cholesterol and serum HDL cholesterol level is estimated in biochemistry laboratory by calorimetric method. Statistical analysis was done by unpaired t test. P value less than 0.05 considered as a significant. **RESULTS:** Total cholesterol level is not significantly ($p > 0.05$) change in diabetic and non diabetic. HDL cholesterol level is significantly ($p < 0.001$) lower in diabetic patients as compared to non diabetics. LDL cholesterol is not significantly ($p > 0.05$) change in diabetic and non diabetic. Total cholesterol level and LDL cholesterol level are significantly ($p < 0.001$) higher in above 45 years male and female than below 45 years of male and female. HDL cholesterol level is significantly ($p < 0.001$) higher in above 45 years of female than below 45 years of female but HDL cholesterol level is not significantly ($p > 0.05$) change in below and above 45 years of male.
CONCLUSION: Total cholesterol level is not significantly ($p > 0.05$) change in diabetic and non diabetic. HDL cholesterol level is significantly ($p < 0.001$) lower in diabetic patients as compared to non diabetics. LDL

cholesterol is not significantly ($p > 0.05$) change in diabetic and non diabetic.

KEY WORDS: Diabetes mellitus Atheroscelrosis HDL

Total cholesterol HDL Myocardial ischaemia

INTRODUCTION:

Diabetes mellitus is a clinical syndrome characterized by chronic hyperglycemia and disturbance of carbohydrate, fat and protein metabolism due to absolute or relative deficiency of insulin action, evolving from interaction of varieties of genetic and environmental factors. Leurine gave the first suggestion – diabetes are extremely prone to ischaemic heart disease as early as 1922 (5,6). Type 2 diabetes mellitus typically double the ischaemic heart disease in men and triples in women (1,3).

In 1951, Barr et al has documented the negative association between high density lipoprotein (HDL) and ischemic heart disease. Medical expert think that HDL tends to carry cholesterol away from the arteries and back to the liver, where it's passed from the body. Some expert believed that HDL removes excess cholesterol from plaque in arteries, thus slowing the buildup (2, 5). The risk of coronary heart disease rises as blood cholesterol level increase. A person at level 240 mg/dl of total cholesterol and above have more than twice the risk of heart disease as someone whose cholesterol level is below 200 mg/dl (3).

If patient do not have coronary heart disease or diabetes LDL goal is <160 mg/dl (4). If there is no coronary heart disease or diabetes and have two or more risk factors LDL goal is less than 130 mg/dl (1, 8). If coronary heart disease or diabetes are present LDL goal is < 100 mg/dl. NCEP (National Cholesterol Education Programme) Guideline = HDL < 40 mg/dl as low, implying as increased risk of CVD.

MATERIALS AND METHODS:

In the present study 80 normal individuals (Controls) and 80 diabetic patients suffering from Non-insulin dependent diabetics mellitus have been

investigated. 40 male and 40 female are below the 45 years of age and 40 male and 40 female above the 45 years of age.

Experimental protocol was explained and consent was taken.

History was taken and clinical examination (general and systemic) done for inclusion and exclusion criteria.

- Inclusion criteria:

1) Male and female with age group of below and above the 45 years.
2) Healthy individual without any known disease.
3) No history of drug, blood transfusion or any condition that affect blood cell count.

- Exclusion criteria :

1) Individual with any known general or systemic disease.
2) Any history of drug or medication that affect blood cell count.
3) Female with pregnancy and menstrual period.
4) Any un co-operative individual.

- Experimental protocol :

1) All the subjects filled the consent form that they are willing to participate in the study.
2) History and clinical examination was done for inclusion and exclusion criteria.
3) Subject's blood sugar, total serum cholesterol, serum LDL cholesterol and serum HDL cholesterol level is estimated in biochemistry laboratory by calorimetric method.
4) Then mean value and standard deviation was estimated by statistical method.

STATISTICAL ANALYSIS:

Unpaired t test is used for analysis and P value less than 0.05 consider as a significant.

RESULTS:

Total cholesterol level is not significantly ($p > 0.05$) change in diabetic and non diabetic. HDL cholesterol level is significantly ($p < 0.001$) lower in diabetic patients as compared to non diabetics. LDL cholesterol is not significantly ($p > 0.05$) change in diabetic and non diabetic. Total cholesterol level and LDL cholesterol level are significantly ($p < 0.001$) higher in above 45 years male and female than below 45 years of male and female. HDL cholesterol level is significantly ($p < 0.001$) higher in above 45 years of female than below 45 years of female but HDL cholesterol level is not significantly ($p > 0.05$) change in below and above 45 years of male.

TABLE 1: Total cholesterol, HDL cholesterol, LDL cholesterol in diabetic and controls below 45 years of age of male.

Parameters	Diabetic	Controls	Significance
Total cholesterol (mg/dl)	184.40 ± 10.59	191.05 ± 14.15	NS
HDL cholesterol (mg/dl)	46.75 ± 3.90	41.50 ± 5.03	S
LDL cholesterol (mg/dl)	124.46 ± 15.53	125.15 ± 19.80	NS

TABLE 2: Total cholesterol, HDL cholesterol, LDL cholesterol in diabetic and controls below 45 years of age of female.

Parameters	Diabetic	Controls	Significance
Total cholesterol (mg/dl)	163.00 ± 7.99	173.90 ± 8.20	S
HDL cholesterol (mg/dl)	54.05 ± 2.16	50.00 ± 2.26	S
LDL cholesterol (mg/dl)	97.05 ± 7.02	98.50 ± 5.55	NS

TABLE 3: Total cholesterol, HDL cholesterol, LDL cholesterol in diabetic and controls above 45 years of age of male.

Parameters	Diabetic	Controls	Significance
Total cholesterol (mg/dl)	223.15 ± 27.15	225.00 ± 17.66	NS
HDL cholesterol (mg/dl)	46.90 ± 3.94	41.10 ± 1.67	S
LDL cholesterol (mg/dl)	152.25 ± 19.85	152.10 ± 18.19	NS

TABLE 4: Total cholesterol, HDL cholesterol, LDL cholesterol in diabetic and controls above 45 years of age of female.

Parameters	Diabetic	Controls	Significance
Total cholesterol (mg/dl)	211.20 ± 27.43	221.05 ± 12.46	NS
HDL cholesterol (mg/dl)	57.10 ± 2.21	52.00 ± 1.90	S
LDL cholesterol (mg/dl)	128.20 ± 22.07	134.60 ± 7.34	NS

Data presented are Mean $\pm$ SD (standard deviation)

NS: not significant ($P>0.05$)

S: significant ($P<0.05$)

DISCUSSION:

In our study, both men and women, of age above 45 years, serum total cholesterol was found to be higher than in those below 45 years of age. In our study, the women below age group of 45 years were having significantly ($p<0.001$) lower serum total cholesterol level than men of same groups. Havel et al (1982) also had observed a sharp rise in the level of serum total cholesterol in women after the 5^{th} decade of life (5). In diabetics

patients, the mean total serum cholesterol concentration in men and women both are within normal limits. This observation is in accordance with those of Nikkils et al (1978), Eckel et al (1981), Harano Y et al (1996) also observed no high level of cholesterol in controlled diabetics.

In control male, HDL cholesterol level is the same in both age groups under study. But, in female, there was significant ($p < 0.001$) increase in its serum level. A gonadotropin effect on HDL may be responsible for maintenance of HDL. HDL cholesterol level between diabetic persons are not altered in men and women of ages below and above 45 years. But it is lower in comparison to the respective age group of control and this is significant.

In our study LDL cholesterol in both sexes increased with ages. Male have higher LDL cholesterol level than female in both the age groups. The level of LDL cholesterol in diabetic was significantly same as in the normal in both sexes. Asayama K. et al also observed unaltered non-HDL cholesterol levels in diabetic patients. HDL cholesterol is known to have a protective role in formation of atherosclerosis also known as “Cardio protective cholesterol” (6,8). What is more disturbing is that in India, coronary artery disease occurs at a younger age group and the atheroma is more extensive.

CONCLUSION:

Total cholesterol level is not significantly ($p > 0.05$) change in diabetic and non diabetic. HDL cholesterol level is significantly ($p < 0.001$) lower in diabetic patients as compared to non diabetics. LDL cholesterol is not significantly ($p > 0.05$) change in diabetic and non diabetic.

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9

COMPARATIVE STUDY OF ROCURONIUM VERSUS VECURONIUM AS INTUBATION AGENT IN TETRALOGY OF FALLOT SURGERY CASES

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ABSTRACT:

Background : The Randomized retrograde blinded study was carried out to evaluate the intubation condition of two different muscle relaxants in 50 cases of Tatralogy of fallot. **Material & Method** :Patients were Anaesthetized with inj. Rocuronium 0.9 mg/kg IV or inj. Vecuronium 0.1 mg/kg after inj. Fentanyl 1 µg/kg, inj. Midazolam 0.01 mg/kg & inj. Ketamine 2 mg/kg. Neuromuscular blockage was assessed by twitch_response of Adductor pollicis longus muscle after supramaximal stimulation of ulnar nerve. **Observations** Tracheal intubation conditions were assessed by blinded anesthetist after 60 sec.till patient got intubated. Time of onset % of Neuro-muscular blockage duration of action were more in vecuronium group. **Conclusion** Rocuronium is better alternative than vacuronium in tetralogy of fallot surgery cases.

KEYWORDS : Neuromuscular relaxant, Rocuronium , Tatralogy of Fallot, Vecuronium

INTRODUCTION: Tetra logy of fallot was first described by Fallot in 1888[1]. It is characterized by large VSD, Right ventricular outflow obstruction, overriding of aorta over pulmonary artery and Right ventricular hypertrophy. Pathophysiology of right to left shunting is there which produce cyanosis in these patients. Magnitude of shunt depends on SVR and PVR[2,3].Increase in PVR and decrease in SVR worsens the cyanosis by increasing magnitude of shunt so paroxysmal attacks of cyanosis occur which is known as tet spells(Hyper cyanotic spells).Due to chronic hypoxemia Erythropoietin production increase which leads to polycythemia and clubbing.[4,5]

Goal of anesthesia in this patient is to (1)Decrease PVR by 100% oxygen and early intubation.(2)To increase SVR by knee chest position(if s Hyper cyanotic spells) and alpha adrenergic agonist (phenylephrine).(3)To overcome dynamic outflow obstruction by beta blocker and deep plane of anesthesia.[2,5]

Rocuronium in new steroidal Non depolarization Muscle Relaxant having Rapid onset of action & intermediate duration of action & good hemodynamic stability. Rocuronium is ORG 9426, 2 Morpholino-16 allyl Pyrilidino derivative of 3-Hydroxy analog of vecuronium with NM potency of1/5 of Vecuronium.[6,7]

Main objective of study was to evaluate intubation condition with Rocuronium. After administrator of 2-3*ED95 0.9 mg/kg with Vecuronium 0.1mg/kg which is commonly used NMR in congenital cardiac surgery cases as it has excellent hemodynamic stability. We have used TOF guard as main parameter to assess NMDA.

Material & Methods:

Starvation Protocol for Patients was follower in following manner.[2,5]

- No solid milk or formulated milk for 6 hrs
- No breast milk for 4 hrs
- No water or clear juice for 2 hrs.

All patients were evaluated day before surgery thoroughly and optimized medically. After approval of institutional committee & informed consent of patients, this randomized controlled double blinded study was carried out in 50 patients of TOF of ASA grade III & IV. I.V. line secured and prophylactic antibiotic given. All patients premeditated with inj. Fentanyl 2 µg/kg and inj. Midazolam 0.01 mg/kg. Pulse oxy-meter ECG attached and vitals evaluated.

Nerve stimulator TOF guard of Drager applied to forearm to stimulate ulna Nerve. Reference electrode place on palmer surface of base of index finger. Active electrode between thumb and index finger. Test hand was immobilized in supine position by arm board. Free movement during thumb adduction was allowed by fixation of extended ulnar side fingers by adhering tapes.[8]

Patients were pre-O_2 by 100% O_2. Anesthesia was given with Inj. Ketamine 2mg/kg[9,10] & Inj. Rocuronium 0.9mg/kg[6,7] or Inj. Vecuronium 0.1mg/kg [11], Before administration of any relaxants, supra maximal stimulus was determined by help of TOF guard by contraction of Adductor pollicis & Flexor digitorum muscles. Thumb adduction was quantified via force displacement transducer. Injection time of Muscle relaxant was noted. Every one sec. Single twitch was given till 100% suppression of control of twitch response [8]. Same blinded anesthetist assessed intubation condition by Cooper scale. After intubation ET Tube was fixed by checking equal bilateral air entry .after intubation nasal infant feeding tube was introduced. Patient was put on ventilator (Pressure mode). Internal Jugular venous cannulation done with shel-dingers technique & appropriate size cannula inserted and fixed. Femoral artery cannulation was done for invasive arterial monitors. Routine antibiotic Prophylaxis was given to prevent endocarditis from transient bacteremia.

We have taken two types of surgery for present study.[12]

- Palliative Surgery- Blalock taussig shunt where surgery is done through Thoracotomy
- Intra cardiac Repair- TOF surgery is done through Sternotomy.

ABGA, sugar, calcium, electrolytes, ECG, Invasive blood pressure, Oxygen saturation monitored intermittently and throughout operation. B-blocker like Esmolol & Propranol kept ready to decrease Heart Rate [13]. Inotropes in form of Nor adrenalin, Dobutamine, Phenylephrine kept ready[14,15]. Inj. Tranexamic acid 1 mg/kg bolus given and than infusion started. Venodilator in form of NTG Kept ready. Heparinizton done with 300 IU/kg and 100IU/kg if BT shunt surgery. As surgical cannulation were done and patient is on heart lung perfusion, ventilation was standby. Heparin repeated at 50 min. Interval. Temp., HR, Invasive BP, CVP, urine output maintained. Perfusion flow was maintained 100-150 ml/kg/min. Temp. Monitored with nasopharyngeal probe. On heart lung machine: membrane oxygenator with filter used and priming is done with crystalloid(patient is cyanotic).mean bypass time is 60±15 minute in ICR cases.On CPB maintenance of anesthesia with narcotics (Fentanyl) and relaxant. Hypothermia between 25 c to 28 c which cause Haemodilution. cardioplegia given by perfusionist. All investigation ABGA, electrolytes, Urine output and temperature were checked periodically and maintained within normal limits. After total ICR, slowly patient is weaning from CPB to normal ventilator by partial flow. Heparin was reversed by inj. protamine by 1:1.5 correction.[2,5]

As proper clotting is assessed clinically and normal ABGA, Sternum is closed. Before shifting patients antibiotic and inj ondansatron given. Patient is shifted to open heart ICU where patient is put on body warmer, maintains surface temp. 36-37ºc. Patient was nebulised and put on Pressure controlled ventilator. As if chances of bleeding are there prophylacticaly FFP, PRC given to stop post CPB bleeding secondary to dilutionl thrombocytopenia and coagulopathy. patients were reversed in ICU after stable haemodynamics and no any drain output.[2,5]

RESULTS & DISCUSSION

	Group R	Group V
Mean Age (Years)	7±1	6±1
Mean Wt. (Kg)	10±3	11±2
Sex(Male:Female)	19:6	20:5
Total No.	25	25

Statastical significance of different variables by Turkey test and Students T test and P<0.05 was significant.

Type of surgery	No. Of Patients
	(Group R)/(Group V)
Blacock tausing shunt	6 | 5
Intra cardiac repair of TOF	19 | 20
Total	25 | 25

ONSET AND DURATION OF RELAXATION:

	Group R	Group V	P value
Onset Time Of Relaxation (Seconds)	90±30.4	174±20.6	P<0.001
Duration Of Action (minutes)	28±6	30±5	P<0.001

W.M sahramn, K. strasser and C.K. Spiss studied that onset time in their study for rocuronium(0.6mg/kg) onset was 142 second and for vecuronium 192 second.[16] In our study rocuronium(0.9mg/kg) was used and onset was early.

In R group 22 patients have 100% suppression of supramaximal stimulus and 3 have 95% suppression. In V group 21 patients have 100% suppression and 4 have 90% suppression of supramaximal stimulus. With intubation dose 22 patient intubated within

60 sec. And 3 patients within 90 sec. With V group 21 patients within 2.4 min. And 4 patients within 3 min. Onset time is shorter with R group (90±30.4 sec.) than with V group (174±20.6) sec.

HAEMDYNAMICS:

Heart Rate/Min.

	Resting	**After induction.**	**After intubation at 1 Min.**	**3 Min.**	**5 Min.**
Group R	110±8	112±10	118±9	113±8	108±8
Group V	106±7	108±8	110±5	108±5	106±5

Mean arterial Pressure (mmHg)

	Resting	**After induction.**	**After intubation at 1 Min.**	**3 Min.**	**5 Min.**
Group R	55±5	56±4	58±3	59±2	60±4
Group V	54±6	55±2	58±5	60±5	59±3

W.M sahramn,K.strasser and C.K. Spiss studied that there are no changes in HR and MAP in neurosurgical patients.[16]

M.Naguib,A.H Samarkandi and associates have studied histamine release haemodynamic changes produced by rocuronium, vecuronium, mivacurium and tubocurarine ,they found no significant change in HR and in MAP in both R and V group.[17]

Mild increase in HR and MAP was in R group which might be vagolytic effect of Rocuronium which came to almost basal level within 10 min. In case of TOF slight increase HR and MAP needed as it decrease magnitude of shunt. There is no difference in SpO_2, $ETCO_2$ and other vitals.[16,!7,18]

Cooper et al Scale (Scoring of intubation condition[11]

Score	**Jaw relaxation**	**Vocal Cord**	**Response to**

		Movement	intubation
0	Poor(impossible)	Closed	Severe Coughing or bucking
1	Minimal(difficult)	Closing	Mild Coughing
2	Moderate(fair)	Moving	Slight Diaphragmatic movement
3	Good(easy)	Open	None

Total Score : 8-9 =Excellent 6-7 =Good

3-5 =Fair 0-2 =Poor

In both R and V Group score was 8-9.

Bronchospasm, Tet spells (24 %) and cyanosis (24%) were noted in both R and V group.

Aim of our study was to compare intubation condition of patient by using 2 non-depolarizing agents Rocuronium 1mg/kg or Vecuronium And to confirm that Rocuronium in good intermediate acting non-depolarizing agent.

Okelly at el. Studied pharmacokinetics of rocuronium in pediatric patient and concluded that weight Rather than surface area is more useful for calculation of dosage in pediatric patients depending on this. We choose bolus dose of rocuronium 0.9 mg/kg (3*ED95) [19]

Quality of neuromuscular junction block a was comparable by intubation condition. Early blockage of laryngeal muscle rather than adductor pollicis by Rocuronium and ease of intubation can not be judge by depression of single twitch. All the patients in R group. Have no diaphragmatic movement.

J. F. Curl an collegnes observe good intubation condition even with 0.6 mg/kg of Rocuronium at 45 sec. With propofol and Fentanyl. Fentanyl is short acting opioid as hypnotic as well as analgesic effect. Curl also used propofol which relaxes laryngeal muscles so that they could intubate in shorter duration with less dose.[20]

Fuchs budder and tassongi demostrated increase dose of 0.6 to 0.9 mg/kg of rocuronium in children significantly decrease onset of action and prolong duration of action.[21]

Susan Woofel found clinical duration 26.7±1-9 min. Stoddart observed 24.2±6.6 min. In our study it was 28 min. Which is due to 2 ED95 dose as well as summative effect of rocuronium and Fentanyl.[22,23]

Our result support that onset of motor blockage and vocal cord and diaphragm is earlier with rocuronium than vecuronium. ($P<0.05$)

Pre induction administration of opioid with anxiolytic improves condition of intubation specifically in R group.

TOF patient are very sensitive patients early intubation is good option to overcome tet spell. The infundibular spasm in total 24 % of patient. Tet spell was three in R group and Three in V group. P is not significant as it is due to pathology it self which was corrected by knee chest position, inj. Phenylephrine 5µg/kg/min. Over 5 min. With inj. Propranolol 0.1 mg/kg/min. But in R group intubation was early while in V group patient has to be ventilated through bag and mask till suitable intubation condition was acheived.[13,14,15]

CONCLUSION:

In nutshell we conclude that Rocuronium is a better alternative to vecuronium as a intubation agent in TOF surgery patients. Rocuronium provides better hemodynamic stability and early intubation to overcome TET spells.

SUMMARY: We have taken 25 pediatric patients ASA grade(3&4) in each group.group R and group V.In both group we have given Inj. Ketamine as a induction agent 2mg/kg.IN group R we have used rocuronium 0.9mg/kg and In group V Inj. Vecuronium 0.1mg/kg as a muscle relaxant.Neuromuscular monitoring done with adductor polliis longus and flexor digitorum muscles by TOF guard.Intubation conditions were judged by Cooper scale.In both group excellent intubation conditions achieved.(score 8-9).Onset time was 90±30.4 seconds in rocuronium group and 174±20.6 seconds in vecuronium group.so early intubation possible in R group.In both group no haemodynamic adverse actions.

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10

A STUDY ON EFFECTS OF TOBACCO CHEWING ON VARIOUS SEMEN PARAMETERS

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Abstracts:
Backgrounds and objectives:Previous studies suggest a deleterious effect of tobacco abuse on semen quality, but their results have not been consistent. We studied the association between current trends of tobacco chewing and its deleterious effects on semen characteristics. **Material and method**: Our study was performed on 145 normal asymptomatic healthy males (50 controls, 95 tobacco chewers) with age-group between 18-47 years. The effects of both severity and duration of tobacco chewing on semen parameters were studied. **Results**:We observed an inverse dose–response relation between tobacco chewing and semen volume, total sperm count and percentage motile and viable sperm. Heavy or long term tobacco chewers had a lower sperm concentration than control group. **Conclusion**: We observed a dose and duration dependent association between tobacco exposure, lower sperm concentration and higher risk of oligozoospermia.

Key Words: Semen quality, sperm concentration, oligozoospermia

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Introduction: Although tobacco abuse in any form is a widely recognized health hazard and a major cause of mortality, people continue to consume it on a regular basis. According to the world health organization (WHO) approximately one third of world population older than 15years, are consuming tobacco.[11,17] Tobacco chewing is one of the most extensively used potentially hazardous social habits throughout the world but more extensively prevalent in South East Asia . Tobacco consumption is now increasing rapidly throughout the developing world and

is one of the biggest threats to current and future world health. The highest prevalence of it is observed in young adult male during their reproductive period between 20 to 39 years.

Today tobacco consumption has been established as a number one preventable cause of death and disease in the countries worldwide. About 30-40% of the all the death from cancer are associated with tobacco consumption. Recent data suggest that tobacco consumption is not only associated with lung cancer but also associated with increased incidence of cancer in larynx, oral, esophagus, cervix, bladder, pancreas and even leukemia .

Smokeless tobacco contain a large number of substances including nicotine, carbon monoxide and recognize carcinogens and mutagens such as radioactive polonium, benzopyrene, dimethylnitrosamine. Various mutagens and carcinogens or other toxic components in smoke disrupt the testicular microcirculation and cause DNA or chromosomal damage in germinal cells. In India chewing tobacco is systematically associated with socioeconomic markers at the individual and household level. Individual with no education are 2.69 times more likely to smoke and chew tobacco than those with a post graduate education

A recent study found that chewing tobacco in men is related to a decrease in overall sperm quality (including count, motility and form). According to the study, the rate of oligo asthenoteratozoospermia (a condition that includes decreased sperm motility, abnormal sperm shape and low sperm count) is very high.

A numbers of studies have shown that tobacco abuse detrimentally affects sperm concentration, volume, motility and morphology and damage the DNA[2,3,5,10,11]. Thus, the present study was aimed to affirm the deleterious effects of tobacco abuse on various semen parameters.

Semen parameters of tobacco chewers were compared with those of tobacco non-chewers. Since tobacco chewing is more prevalent in Saurashtra region and paucity of literature detailing such study in this region, more tobacco chewers were included in study group.

Thus, the present study was aimed to affirm the deleterious effects of cigarette smoking on various semen parameters.

Material and Methods : The study was conducted on 145 cases after obtaining permission from Institutional Ethics Committee. The subjects, enrolled for the study were informed about the study and procedural details and an informed consent was obtained. In order to exclude conditions that might influence the results, the recruitment of subject was done on the basis of following criteria.

Inclusion criteria:

- Age group: 18 to 47 years
- Recruitment of subjects: Patient attending Infertility clinics, Surgery and medicine outpatient departments of hospital and adult volunteers from society.
- No. of subject: Total 105 (50 were control and 55 were smokers).

Exclusion criteria:

- Age less than 18 & more than 47 years

- No alcohol abuse/ Not on medications/No urogenital disease or developmental anomalies.
- No h/o occupational exposure to toxic chemicals or higher temperature, No h/o of surgery of urogenital disease/ any endocrine disorders

Clinical assessment

A detailed history and physical examination was conducted and patients were categorized according to the frequency of tobacco chewing per day. Mild tobacco chewers when less than 3 times a day, moderate chewers when 3-6 times a day and severe when more than 6 times a day. The tobacco chewers according to the duration were divided into short term, 1-10 years and long term 11-20 years.

Semen Analysis

The study will be conducted in Central Clinical Laboratory of hospital. Semen analysis was performed as per WHO standard guidelines. Suboptimal sperm collection remains a frequent cause of error in the semen analysis. Therefore the instructions for the semen productions were strictly followed before producing the semen .It was emphasized to patients that there should be 2 to 7 days of sexual abstinence before collection. Sterile wide mouth, non - toxic plastic containers were used and they were labelled with the patient identifying information.

Macroscopic examination:

- In the first 5 minutes:

After collecting the semen sample and proper labelling all necessary information of patient on the container it was placed in an incubator (37 °C) for liquefaction.

- Between 30 and 60 minutes

Assessment of liquefaction time, semen volume and pH were noted.

Liquefaction time

Semen sample was allowed to liquefy in the incubator for at least 20 minutes and then checked for completion of liquefaction. If the semen is not fully liquefied, it may be returned to the incubator until coagulum disappears. Normal semen sample should liquefy maximally in 45 mins.

Semen Volume

Measurement of semen volume was done with the graduated test tube

Seminal pH

A drop of semen was spread evenly on to the pH paper and the colour change was compared with calibration strip.

Microscopic examination

- Preparing a wet preparation for assessing microscopic appearance, sperm motility
- The dilution required for assessing sperm number.
- Assessing sperm vitality (if the percentage of motile cells is low).
- Making semen dilutions for assessing sperm concentration for assessing sperm number

Statistical Analysis

Data was expressed as mean value ± standard deviation and comparisons between the three groups were performed using one-way analysis of variance (ANOVA), and unpaired t test was used for comparisons between two groups.

Result:

Table I: anthropometric and semen parameters between tobacco chewers and control group.

PARAMETERS	CONTROL GROUP (N=50)	TOBACCO CHEWERS (N=95)
Age	28.34±	30.87±

	4.81	5.80
Weight	62.98± 4.90	59.80± 6.20
Height	166.06± 5.05	162.80± 8.80
Bmi	22.78± 1.90	22.54± 3.30
Semen volume(ml)	3.55± 0.70	2.63± 0.58*
Seminal ph	7.46± 0.19	7.43± 0.40
Liquefaction time(mins)	40.42± 6.57	41.32± 5.05
Sperm concentration (millions/ml)	76.6± 12.05	49.96± 11.08*
Total sperm count (millions)	271.65± 67.36	134.04± 51.10*
Sperm motility (percentage)	68.62±9.94	56.48±9.57*
Sperm viability (percentage)	75.94±6.51	57.45±10.90*

*P value<0.05 – Significant

Graph 1.

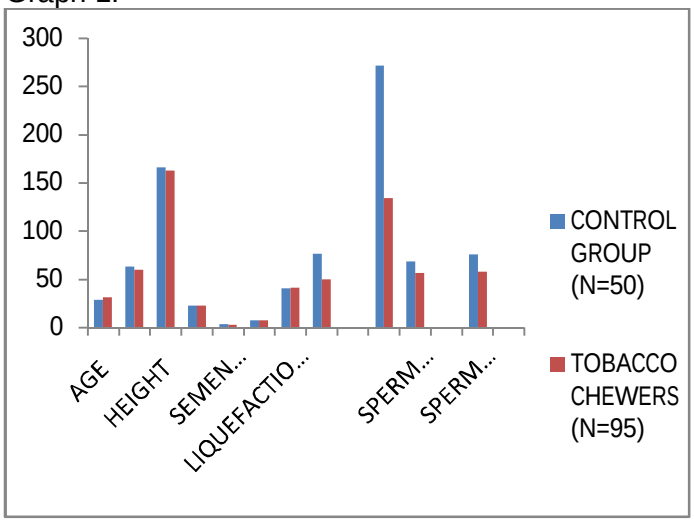


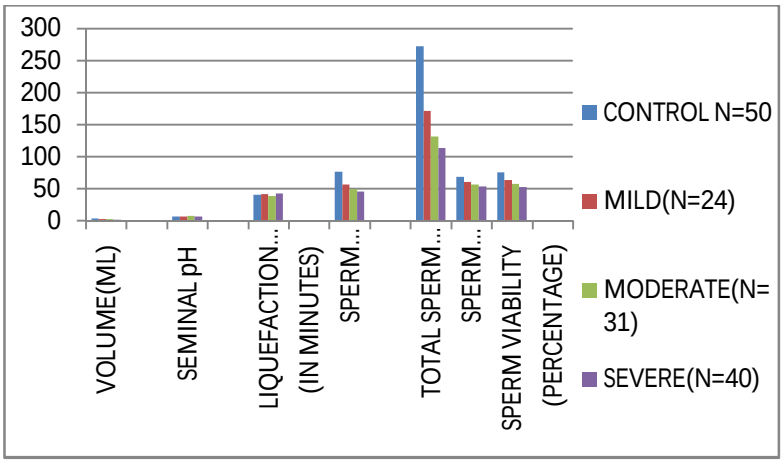
Table II: semen parameters of control group and different subgroups of tobacco chewers

Semen parameters	Control group	Tobacco chewers (n=95)		
	(N=50)	Mild (n=24)	Moderate (n=31)	Severe (n=40)
Semen volume(ml)	3.55± 0.70	2.88± 0.77*	2.62±0.52*	2.44±0.45*

SEMINAL pH	7.46± 0.19	7.45± 0.31	7.53± 0.25	7.41±0.19
Liquefaction time(mins)	40.42± 6.57	41.45± 6.70	38.73± 6.85	43.30± 7.78
Sperm concentration (millions/ml)	76.6± 12.05	56.75± 10.84*	49.54± 9.30*	46.25± 8.76*
Total sperm count millions	271.65± 67.36	171.52± 51.32*	131.80± 53.1*	113.36± 35.50*
Sperm motility(%)	68.62± 9.94	60.45± 7.14*	56.41±12 .79*	54.15± 7.05*
Sperm viability(%)	75.94± 6.51	64.25± 12.25*	57.67± 11.34*	53.30± 7.25*

*P value<0.001– Significant

Table II shows comparison of semen parameters between control group and mild, moderate and severe tobacco, it shows that semen parameters like semen volume, sperm concentration, total sperm count , sperm motility and sperm viability were statistically significantly different from that of control group.



Graph 2.

Table III: semen parameters of control group, short term and long term tobacco chewers.

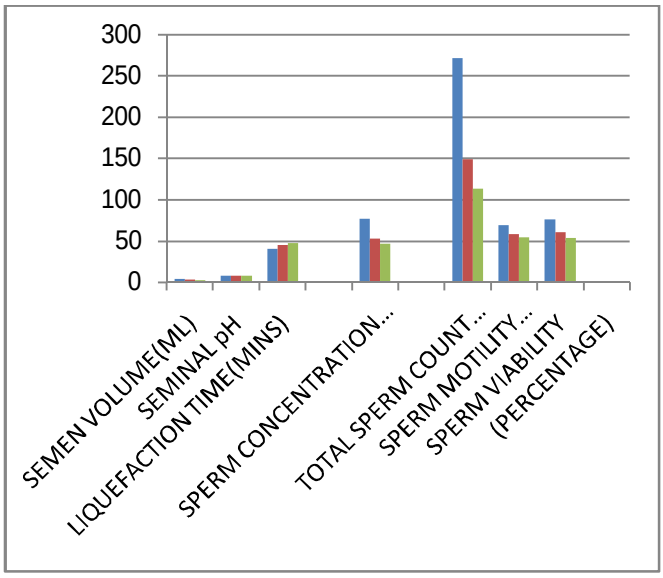
Parameters	Control	Duration of tobacco chewing	
		Short term (1-10 yrs) (n=55)	Longterm (11-20yrs) (n=40)
Semen volume	3.55± 0.70	2.73± 0.76*	2.45± 0.62*

Seminal ph	7.46± 0.19	7.50± 0.30	7.45± 0.32
Liquefaction time(mins)	40.42± 6.57	41.10± 8.16	40.30± 7.78
Sperm concentration (millions/ml)	76.6± 12.05	52.69± 11.85*	44.22± 7.86*
Total sperm count (millions)	271.65 ±67.36	149.14± 55.56*	105.36± 32.53*
Sperm motility (%)	68.62± 9.94	58.18± 10.80*	53.50± 5.47*
Sperm viability(%)	75.94± 6.51	60.54± 12.09*	52.10± 9.50*

*p value<0.001– significant

Table III shows comparison of semen parameters between control group and short term and long term tobacco chewers, it shows that semen parameters like semen volume, sperm concentration, total sperm counts , sperm motility and sperm viability were significantly lower in long term chewers than that of control and short term chewers.

Graph 3.



Discussion and Conclusion: The results of our study showed that the tobacco abuse adversely affects semen parameters. In this study we observed a statistically significant dose–response relationship between current tobacco chewing and several semen characteristics. The sperm concentration, the semen volume, the total sperm count and the percentage of motile and viable sperm dropped with increased duration and severity of tobacco chewing.

Although various studies have demonstrated that chewing tobacco is associated with the abnormal semen parameters[7,12] however contradictory finding are also available.

The mechanism behind the harmful effect of tobacco on semen quality is not fully understood. Disturbance of the hypothalamo–pituitary–gonadal system ormild hypoxia caused by the disruption of the testicular microcirculation are possible explanations, but a direct toxic effect of the many chemical components on the germinative epithelium is a more likely explanation [6]. Oxidants in tobacco are thought to damage sperm DNA.

In conclusion, we found that tobacco chewing in adult life impairs semen quality moderately and independently of prenatal exposure to tobacco. It would be sensible to advise men to abstain from tobacco to avoid decreased fecundity.

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11

STUDY OF ASSOCIATION BETWEEN ABO BLOOD GROUP AND RHEUMATIC HEART DISEASE IN BOTH MALE & FEMALE

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******Professor of Physiology**

ABSTRACT

Background: Now a day, heart disease is the leading cause of morbidity and mortality in the industrialized nations. From an epidemiological point of view Rheumatic fever and Rheumatic heart disease cannot be separated. Both of them are a major cardiac cause of disability and death. The onset of Rheumatic fever is usually preceded by a Streptococcal sore throat caused by Group-A Streptococcus one to four weeks earlier. Attempts have been made to correlate the occurrence of rheumatic fever and Rheumatic heart disease with genetically determined red blood cell groups, particularly ABO system. . Clarke had shown statistically significant association between Rheumatic disease and blood groups. **OBJECTIVE:** Goal of our study is to observe the association between ABO blood group and rheumatic heart disease in male & female. **METHOD:** 120 cases of Rheumatic heart disease patients taken. 67 cases are male & 53 cases are female. 2500 controls of ABO blood groups taken. The entire subject were instructed about study and written consent taken. History and clinical examination was done. The selection of cases of Rheumatic fever was made by Jones's Criteria. Blood from vein is drawn for estimation of ABO blood group and for diagnosis of rheumatic heart disease. Statistical analysis was done by chi-square test. P value less than 0.05 considered as a significant. **RESULT:** Out of 120 cases, 36 patients were of group 'A' (30.00%), 46 patients were of group 'B' (38.33%), 27 were of group 'O' (22.50%) and 11 cases were of group 'AB' (9.17%). In control cases, 37.08% belongs to group 'B', 33.08% to blood group 'O'. 21.48% to blood group 'A' and only 8.36% to AB. Its comparison with control series revealed that there was an apparently increased frequency of disease in the 'A', 'B' and 'AB' blood group and a decrease in blood group 'O'. There is increased incidence in blood group 'A' and low incidence in Blood group 'O'. Male & female both supported these. This chi-square value revealed and it is significant [P value between 0.05 and 0.02 i.e. < 0.05 and Degree of freedom (D.F.) = 3].
CONCLUSION: It is concluded therefore that, group 'A' individuals of both sexes are more susceptible to rheumatic heart disease while group 'O' individuals of both sexes are relatively resistant to the disease.

KEY WORDS: Rheumatic fever Streptococcus

ABO system Sore throat Rheumatic heart disease

MAIN ARTICLE

INTRODUCTION:

Several studies show that the environmental, bacterial and host factors apparently play its role in the development of Rheumatic fever. There is growing body of evidence to suggest that there is genetic constitution or rheumatic constitution, which expresses itself in the form of hypersensitivity or auto-immune response to invasion of Streptococcus (3.7). Khattab and Ismail (1960) and Buckwalter (1962) who have found an increased incidence of rheumatic fever in persons of blood group 'A' and a significant decrease of the disease in persons of group 'O'(2,10).

The existence of serological differences between individuals was first described by Landsteiner (1901) at the turn of century. He classified people into one of the four groups, depending on whether their red cells contained 'agglutinogen A', 'agglutinogen B' neither A or nor B (O) or both A and B (AB). In India, Rheumatic heart disease account for 33-50% of all cardiac death and over six million children are affected by the disease (4,9).

Rheumatic fever occurs at all ages, except infancy, but incidence peaks between 5-15 years, a period when Streptococcal infections are most frequent (1,5). The disease occurs with about equal frequency in both sexes with no significant racial productivity. Glynn and Halborow (1952, 1961) postulated that Streptococci possibly convert the blood group substances secreted in saliva to antigens, which led to the causation of Rheumatic fever (6).

MATERIALS AND METHODS:

120 cases of Rheumatic heart disease patients taken. 67 cases are male & 53 cases are female. 2500 controls of ABO blood groups taken.

Experimental protocol was explained and consent was taken.

History was taken and clinical examination (general and systemic) done for inclusion and exclusion criteria.

- Inclusion criteria:

4) Male and Female both are included.
5) No history of drug, blood transfusion or any condition that affect blood cell count.

- Exclusion criteria :

5) Controls with any known general or systemic disease.

6) Any history of drug or medication that affect blood cell count.
7) Female with pregnancy and menstrual period.
8) Any un co-operative individual.

- Experimental protocol :

5) All the subjects filled the consent form that they are willing to participate in the study.
6) History and clinical examination was done for inclusion and exclusion criteria.
7) Blood from vein is drawn for estimation of ABO blood group and for diagnosis of rheumatic heart disease.
8) The selection of cases of Rheumatic fever was made by Jones's Criteria:

(A) MAJOR CRITERIA:
Carditis
Polyarthritis
Chorea
Erythema marginatum
Subcutaneous nodules

(B) MINOR CRITERIA:
(a) Clinical findings:
Fever
Arthralgia
(b) Laboratory findings:
Increased ESR
Increased acute phase reactant
Increased C reactive protein
Prolonged PR interval on ECG.

Supporting Evidence of Antecedent Group A Streptococcus Infection :

- Positive throat culture
- Rapid Streptococcus antigen test.
- Elevated or Rising Streptococcus Antibody titre.

If supported by evidence of preceding Group A Streptococcal infection, the presence of two minor manifestations or of one major and two minor manifestations indicate a high probability of acute Rheumatic fever.

9) Statistical analysis was done by chi-square test.

STATISTICAL ANALYSIS:

Statistical analysis was done by chi-square test. P value less than 0.05 considered as a significant.

RESULT:

Out of 120 cases, 36 patients were of group ‘A’ (30.00%), 46 patients were of group ‘B’ (38.33%), 27 were of group ‘O’ (22.50%) and 11 cases were of group ‘AB’ (9.17%). In control cases, 37.08% belongs to group ‘B’, 33.08% to blood group ‘O’. 21.48% to blood group ‘A’ and only 8.36% to AB. Its comparison with control series revealed that there was an apparently increased frequency of disease in the ‘A’, ‘B’ and ‘AB’ blood group and a decrease in blood group ‘O’. There is increased incidence in blood group ‘A’ and low incidence in Blood group ‘O’. Male & female both supported these. This chi-square value revealed and it is significant [P value between 0.05 and 0.02 i.e. < 0.05 and Degree of freedom (D.F.) = 3].

TABLE 1: Percentage distribution of ABO blood groups in controls and patients of rheumatic heart disease.

	A	B	0	AB
Control	21.48	37.08	33.08	8.36
Rheumatic heart disease	30.00	38.00	22.50	9.17
Difference	+8.52	+1.25	-10.58	+0.81

TABLE 2: Showing the relative incidence based upon blood group frequencies in rheumatic heart patients and control.

Compared blood groups	Relative incidence	Chi-square	Degree of freedom	Probability	% of probability being significant
Group A to O	1.99	8.39	1	0.005	Highly significant
Group B to O	1.49	2.81	1	0.1	90%

Group AB to O	1.58	1.48	1	0.34	66%
Group Non-O to O	1.66	5.73	1	0.02	Highly significant

TABLE 3: ABO blood group distribution in male and female Rheumatic heart disease patients.

Blood Group	MALE		FEMALE	
	Number	Percentage (%)	Number	Percentage (%)
A	20	29.85	16	30.19
B	25	37.31	21	39.62
O	16	23.88	11	20.76
AB	6	8.96	5	9.43
TOTAL :	67	100.0	53	100.0

DISCUSSION:

In the present work the study was made on 120 cases of rheumatic heart disease and their blood group was analysed. Out of 120 cases, 36 patients were of group ‘A’ (30.00%), 46 patients were of group ‘B’ (38.33%), 27 were of group ‘O’ (22.50%) and 11 cases were of group ‘AB’ (9.17%). Its comparison with control series revealed that there was an apparently increased frequency of disease in the ‘A’, ‘B’ and ‘AB’ blood group and a decrease in blood group ‘O’. Chi-square x^2 method for such analysis and it was found that there is increased incidence in blood group ‘A’ and low incidence in Blood group ‘O’. Buckwalter et al 1962, found that females exhibited more ABO blood group than males.

Rheumatic fever follows infection of upper respiratory tract with group ‘A’ Streptococcus which was found as early as 1900 by Poyton and Payne, Collis (1931) also found the Streptococcus haemolytics Group ‘A is containing related to the etiopathogenesis of rheumatic fever (2,8). For group ‘a’ to O the X^2 value 8.39 was found to give a probability (P) – 0.005 which is highly significant. The relatively low incidence of Rheumatic heart disease in group ‘O’ persons was again tested for significance by comparing collectively non ‘O’ to group ‘O’. The relative incidence of group non ‘O’ to ‘O’ was found to 1.66 that means that group non ‘O’ persons are 1.66 times more prone to develop Rheumatic heart disease and the X^2 value 5.73 with D.F. = 1 gives a probability to 0.02 which is again highly significant.

In control cases, 37.08% belongs to group ‘B’, 33.08% to blood group ‘O’. 21.48% to blood group ‘A’ and only 8.36% to AB. The distribution of Blood group in 120 test cases

were observed as 38.33% belongs to blood group 'B', 30.00% to group 'A', 22.50% to group 'O' and only 9.17% to blood group 'AB'. The outstanding differences in the incidence of Rheumatic heart disease in blood group 'B' and 'A' was found to be statistically significant. It was more significant when incidence in blood group 'O' was compared with that of non 'O' blood group (p value = 0.02).

CONCLUSION:

It is concluded therefore that, group 'A' individuals of both sexes are more susceptible to rheumatic heart disease while group 'O' individuals of both sexes are relatively resistant to the disease.

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12

A COMPARATIVE STUDY OF INTERNAL JUGULAR VEIN CATHETERIZATION IN CRITICAL CARE PATIENTS: ULTRASOUND GUIDED VERSUS CONVENTIONAL METHOD

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Abstract:
Introduction:
Ultrasound-guided internal jugular vein (IJV) catheterization is known for improving success rate and reduction in rate of complications. The ultrasound image can be used as a real time image during catheterization or to locate the IJV before attempting catheterization. Various serious complications like carotid artery puncture, haemothorax, pneumothorax or arrhythmias can occur during the procedure. Ultrasound guidance could be beneficial in placing central venous catheters by improving success rate, reducing the number of needle passes, decreasing access time and overall success with reduced incidence of complications.
Methods: Total 120 patients were randomly selected for IJV catheterization either by conventional or ultrasound guided technique. Number of attempts, success rate, total venous access time, and complications were observed in each group. **Results:** Successful catheterization (up to 3 attempts) was achieved in all patients of both groups. Total venous access time was found to be significantly less in ultrasound groups than the conventional group. Number of attempts and success in first attempt was higher in ultrasound group. This group also had less number of complications. **Conclusion:** Ultrasound guidance is beneficial in placing central venous catheters by improving success rate, reducing the number of needle passes, decreasing access time and decreasing complications. Ultrasound guided technique improves the catheterization of IJV with respect to safety, rapidity and comfort to the patient during procedure.

Keywords: central venous catheterization, internal jugular vein, ultrasonography, conventional

Introduction: catheterization

Central venous catheterization has specific indications and should be reserved for patient who has potential to benefit from it. Hermosura et al. described right internal jugular vein catheterization in 1966, and since then it has become one of the most popular routes for central venous catheterization. [3, 6]

In conventional technique, internal jugular vein catheterization is performed using external anatomical landmarks and palpation of carotid artery. However, depending on operator's experience and patient's anatomy, this procedure may be difficult or unsuccessful. [1, 4]

In the last few years, increased use of ultrasound has improved the success rate of internal jugular vein catheterization, while reducing the time required performing it and the number of complications. It is also helpful in identifying patients in whom catheterization may be difficult. This technique requires understanding of neck anatomy as well as skill in performing and interpreting the results. However, its widespread use has been restricted due to unavailability of equipment and trained personnel. [9]

When USG is used for internal jugular vein catherisation, vessel patency, diameter, degree of collapse with respiration, overlap with internal carotid artery, and depth from

skin is noted. This maximizes success rates and reduces complications even with less experienced physicians.

Alternatively, ultrasound imaging can be applied for evaluation of anatomic structures before attempting venous puncture, which helps the clinicians to locate carotid artery and IJV and also determines the direction and site of venepuncture. However, only few studies compared IJV catheterization by real-time ultrasound imaging, ultrasound-guided prelocation, and the conventional anatomical landmark technique (central approach). So we decided to conduct this study.

Aim:

The aim of our study is to compare success rate, complication rate, and total access time for catheterization during IJV catheterization by using conventional or ultrasound-guided technique.

Objective:

-To compare effectiveness of ultrasound guided IJV catheterization with conventional technique.

-To assess whether IJV catheterization using an ultrasound guided technique leads to improvement of procedure.

Materials and methods:

Source of data: Patients admitted in intensive care unit (ICU) of our hospital
Study period- from July 2014 To November 2014
Total No. of Patients- 120
Inclusion Criteria- Patient Requiring IJV Catheterization.

Exclusion Criteria- Patients with history of previous neck surgery, head and neck mass or cancer, morbidly obese patient, severe coagulopathy or infection at catheterization site.

Patient selection- patients were randomly allocated to both the groups. In one group (conventional) IJV catheterization done by conventional anatomical landmark technique using central approach and in another group (USG) ultrasound-guided technique is used.

Preparation:

-patient and/or relatives were explained about the procedure and informed written consent was taken

-blood coagulation profiles done, if not done recently.

-standard monitoring (electrocardiogram, blood pressure, and pulse-oximeter) was applied.

-patients were positioned in Trendelenburg (20-30°) position with head turned slightly toward left side.

-right side of neck region was prepared with an antiseptic solution.

-inj. Lignocaine 1% 2 ml was infiltrated locally

-if required, sedation provided with Inj. Midazolam 1-2 mg intravenously.

-procedure was performed by experienced person (performed minimum5 previously).

Equipments:

Packaged central venous/dialysis catheter kit depending on indication

betadine solution, spirit

Gauze pads
Suture on needle
5 cc syringe with 23g needle for check puncture
2 cc syringe for local anaesthesia
Lignocaine 2% bulb.
Surgical cap and mask, sterile gloves and drape
Tegaderm for probe cover and dressing

Procedure:

In conventional technique group:
Anatomical landmarks (sternocleidomastoid muscles, suprasternal notch, cricoid cartilage, and clavicle) were assessed and marked (figure-1). The carotid artery is palpated and its course determined. An introducer needle attached with 10 ml syringe filled with 2-3 ml normal saline was inserted at apex of triangle formed by two heads of sternocleidomastoid muscle, directed towards ipsilateral nipple at an angle 20-30° with skin.

In ultrasound-guided technique group:
Conducting jelly was applied on probe and the probe was covered with sterile tegaderm dressing or glove (figure-2). Transducer of ultrasound device was placed on right side of the neck, at the level of cricoid cartilage, perpendicular to the skin. Carotid artery and internal jugular vein were located. Visible pulsations were used to identify carotid artery and compressibility for internal jugular vein. Catheterization was performed under real-time imaging.

In both groups:
Return of free flow of dark blood in syringe attached to needle confirmed entry into internal jugular vein. Guide wire introduced, needle removed, vein dilated and catheterization done. Position of catheter in internal jugular vein was confirmed by USG at the end of procedure and X-ray chest later on within 2-3 hours. The catheter position

was secured with suture, and a sterile dressing was applied.

Observation:

Following observation were recorded: number of attempts, success rate and total venous access time. Complications like local swelling, hematoma, arterial puncture, arrhythmia, pneumothorax, hemothorax, and catheter malposition were recorded. Inability to cannulate internal jugular vein in 3 attempts was recorded as a failure.

'total access time' was defined as duration of time from skin puncture to completion of skin suturing.

Position of catheter tip and occurrence of pneumothorax was confirmed by performing chest radiograph. If haemothorax suspected USG of chest was done and managed accordingly. Complications were managed accordingly.

Statistical analysis was performed using MS office.

Results:

For all patients in our study,right IJV catheterization was attempted for maximum of 3tries, after which procedure was abandoned. Demographic data is summarized in table 1& 2.

Table-1 Age Distribution

Age group (years)	USG group	Conventional group	Total Number	Total percentage
<25	9	10	**19**	**15.8**
25-<50	14	18	**32**	**29.1**
50-<75	21	41	**62**	**51.6**
>75	5	2	**7**	**5.8**
Total	**49**	**71**	**120**	**100.0**

Table-1 shows age wise distribution in both patients, indicates that maximum no. of patients are in the age of 50-75 years.

Table-2 Sex Distribution

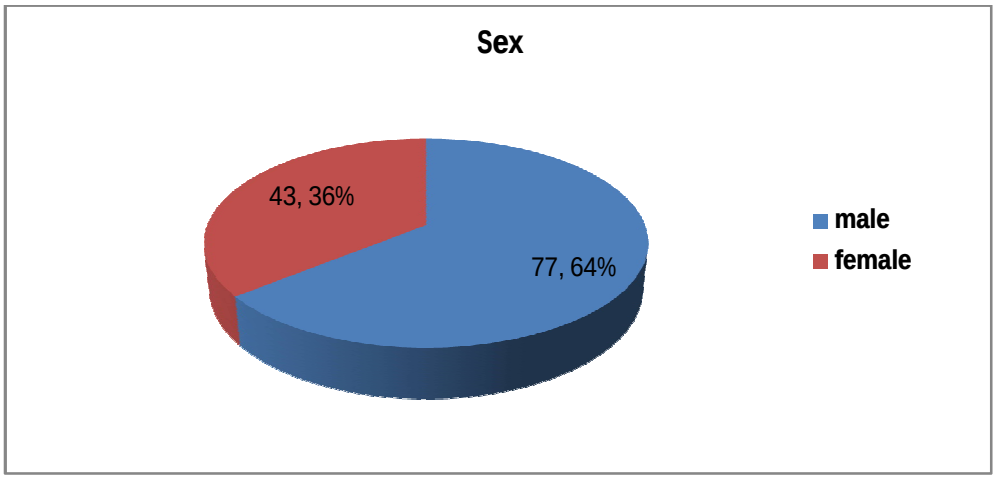


Table-3 technique for catheterization

Group	Number	Percentage %
USG guided	70	58.3
Conventional	50	41.6
Total	**120**	**100**

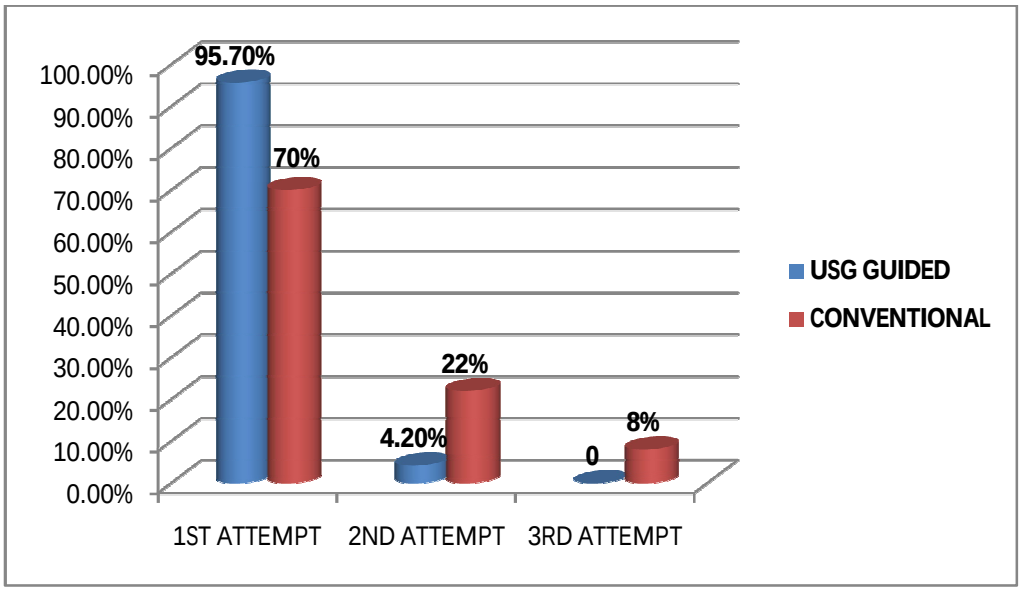
The above table shows no. of patients in whom both the technique was used.

Table-4 Total Venous Access Time

Group	Time in minutes			
	Minimum	Maximum	Mean	Median
USG guided	1.0	4.95	2.25	2.135
Conventional	3.2	9.00	4.90	4.425

Table-4 shows minimum as well as maximum time required to perform the procedure. Median time was significantly short (2.135 v/s 4.425 min) in USG guided group

Table-5 Number of Attempts



Percentage of successful catheterization in 1st, 2nd and 3rd attempts is summarized in table-5. In USG guided group more than 95% patients are cannulated in 1st attempt while 8% in conventional group required 3 attempts for the same.

In both groups successful catherisation was achieved in all the patients, may be due to performance by experienced person.

Table-6 Complications

Technique	USG Guided		Conventional	
Complication	**No of patients**	**%**	**No of patients**	**%**
Local haematoma	-	-	4	8
Carotid puncture	-	-	3	6
Catheter malposition	1	2	1	2
Pneumotharax	-	-	1	2
Haemothorax	-	-	1	2

The above table shows incidence of complications in both groups showing minimum in USG guided group. The commonest complications in conventional group are local haematoma (8%) and carotid puncture (6%).

Discussion:

Real-Time ultrasound guidance may be provided either through the external application of an ultrasound probe to visualize the vessels or with doppler probe for identifying needle entry into the vein. National Institute Of Clinical Excellence (NICE) guidelines,

recommend that 2D ultrasound should be considered in most clinical circumstances where central venous catheterization is indicated. [8]]

In our study IJV catheterization was possible in all of the patients in this study. However, successful IJV catheterization in 2 attempts was achieved in 97% of patients in **USG** guided group while in conventional landmark technique it was around 92%, which is in accordance with the success rate reported in previous studies using anatomical landmarks (85-99%).[4]

Most of the studies have not specified the definition of successful catheterization, and it varied from <3 attempts without carotid artery puncture to <7 attempts and some investigators have defined it as access time less than 4 minutes. [2]

Success rate with real-time ultrasound imaging in our study is also similar to results of previous study (94-100%). [5] Most of the previous studies have not found any significant difference in success rate while comparing different techniques of IJV catheterization. This is mainly due to, requirement of a large sample size, varying definition of success or failure of catheterization and different study population. However, Mallory and Denys et al. found a significant difference in success rate while comparing anatomical landmark technique with ultrasound guided real-time imaging technique. [7] Similarly, Chuan et al. found statistically significant difference in success rate between anatomical landmark and ultrasound guided pre-location technique (80% v/s 100%) in their study. [2]

The median of total venous access time in USG group of our study was found to be significantly low, which is in accordance with previous studies. Various studies shown variation in time for puncture and catheterization, but the definition also varied considerably. Hence, it is difficult to compare data from different studies.

Incidence of carotid artery puncture in conventional group of our study are comparable with previous studies using same technique. Hematoma formation occurred in 4 patients belonged to the conventional group, which was managed by external compression. As reported in earlier studies, our study also demonstrates usefulness of ultrasound technique for placement of IJV catheters, and decreasing the incidence of complications. [4, 5]

The ultrasound guided techniques not only clarifies relative position of vein and its surrounding structures, but also helps in identifying course of the vein and artery and their calibre and thereby infuses confidence to the operator.

Cost is one of the limiting factors in the availability of ultrasound device in many clinical setups but it is only a one time investment and can be used for other purpose also. A further cost is incurred while using the real-time imaging technique, as specific sterile cover (tegaderm or glove) and jelly are used but it is not that much effective.

Ultrasound machine available in operation room or ICUs for other purposes can be used for ultrasound-guided IJV catheterization, thereby increasing successful catheterization, effective utilization of available equipment and avoiding purchase of additional equipment.

Limitations: Ultrasound image does not necessarily confirm location of the tip, so we have to look for return of blood in syringe.

Maintenance of sterile field while using USG probe.
Requirement for an experienced staff but with minimal training anyone can do it.
A small sample size, non-blinded assessment of outcomes, and non-measurement of the IJV diameter were the limitations of our study.

Conclusion:

In conclusion, application of ultrasound guided techniques increases the success rate of IJV catheterization, reduces time of catheterization as well as rate of complications compared to conventional landmark technique. Hence, ultrasound-guided techniques should be used for IJV catheterization whenever available. Ultrasound guided pre-location technique can equally useful as that of real-time imaging technique in all circumstances.

As the number of users for USG guided technique are increasing , it may replace anatomical landmark technique as conventional technique.

Acknowledgment:

I am very thankful to my department for helping me in preparing my study.

I acknowledge Dr S T Malhan, Superintendent of V S General Hospital and Dr Pankaj R Patel, Dean of Smt. NHL Municipal Medical College for allowing me to carry out this study.

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Figure-1 Anatomical Landmark for Conventional Technique

Figure- 2 Aseptic USG Transducer Preparation

Figure-3 Skin Puncture under USG Guidance

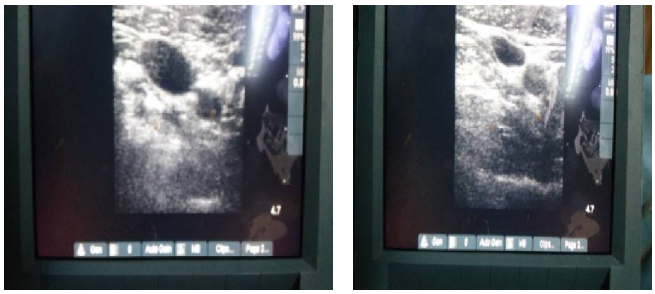

Figure-4 USG Image Showing IJV and Carotid Artery

13

PREVALENCE AND PREDICTORS OF MICROALBUMINURIA IN PATIENTS WITH TYPE 2 DIABETES MELLITUS: A CROSS-SECTIONAL OBSERVATIONAL STUDY

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Abstract

Backgrounds & Objectives: Albuminuria is a well-known predictor of poor renal outcomes in patients with type 2 diabetes and in essential hypertension. Albuminuria has also been shown more recently to be a predictor of cardiovascular outcomes in these populations. This review discusses the measurement of albuminuria and the

association between albuminuria and adverse cardiovascular and renal outcomes in type 2 diabetes and hypertension.
Methods: 1280 type 2 diabetic patients attending a diabetes centre in civil hospital campus, Ahmadabad were recruited for the study. Urinary albumin concentration was measured by immune turbodimetric assay. Microalbuminuria was diagnosed if the urinary albumin excretion was >30 mg/g of creatinine.
Results : Overall prevalence of microalbuminuria was 36.3% (95% confidence interval 33.8 to 38.9). The microalbuminuric patients had significantly increased systolic and diastolic blood pressure compared to normoalbuminuric subjects ($p<0.01$). The prevalence of microalbuminuria increased with the increase in duration of diabetes.
Interpretation & Conclusion: The presence of albuminuria is a powerful predictor of renal and cardiovascular risk in patients with type 2 diabetes and hypertension. Physicians should measure urinary albumin excretion in patients with type 2 diabetes and hypertension routinely and be as aggressive in treating this modifiable risk factor as they do blood pressure, cholesterol, or blood glucose.
Key Words: Microalbuminuria, Type 2 Diabetes Mellitus, Essential Hypertension

Background: Albuminuria is a well-known predictor of poor renal outcomes in patients with type 2 diabetes and in essential hypertension. Albuminuria has also been shown more recently to be a predictor of cardiovascular outcomes in these populations. This review discusses the measurement of albuminuria and summarizes the association between albuminuria and adverse cardiovascular and renal outcomes in type 2 diabetes and hypertension.**Aims & Objectives: 1**.To study the effect of microalbuminuria on renal outcomes in diabetics. **2**. To study the effect of microalbuminuria in cardiovascular outcomes in hypertensives. **3**. To study the effect of microalbuminuria on total duration of diabetes.
Methods & results : The study group comprised of 1280 diabetic patients attending diabetes clinic,civil hospital campus, Ahmadabad during the period from year 2010 to year 2013 with patients having incomplete records, presence of urinary tract infection, or heart failure were excluded (n = 90). In all study patients, a complete clinical work up was done including height, weight, and BMI. Patients were categorized as being hypertensive if they were on antihypertensive treatment or if they had a blood pressure >140/90 mm Hg. A fasting sample of blood was drawn after an overnight fast of 10 hours and the following investigations were done: plasma glucose, serum cholesterol, serum triglycerides, high density lipoprotein-cholesterol, and serum creatinine. Urine samples were collected in the early morning after an overnight fast. Urine microalbumin concentration was measured using commercially available immunoturbidometric assay kits from Randox (Randox, UK) on Opera Technicon Auto Analyser (Bayer Diagnostics, USA). **Result:** The 1190 patients studied included 720 males and 470 females. Overall 428 had microalbuminuria (36.3%, 95% confidence interval (CI) 33.8 to 38.9). Prevalence of microalbuminuria among males was 32.1% (95% CI 31.0 to 37.4) and among females, 39.9% (95% CI 35.7 to 44.1).

Table–1 **the clinical and biochemical characteristics of the normoalbuminuric and microalbuminuric patients**

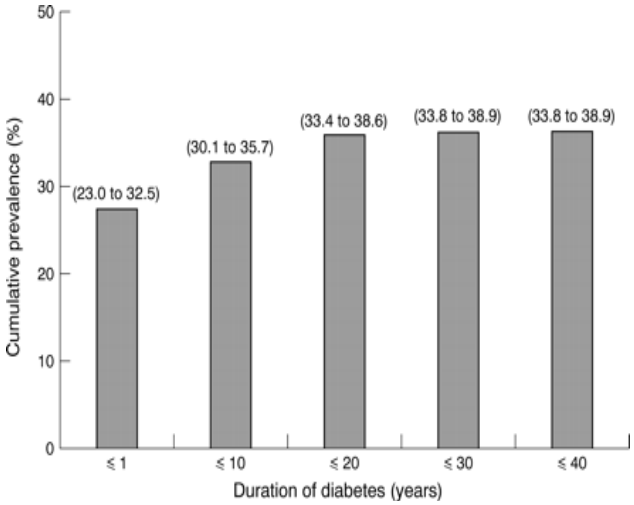
Parameters	*Normoalbuminuric group (n=844)*	*Microalbuminuric group (n=420)*	*p Value*
Age (years)	51 (10)	54 (11)	<0.001
Male (%)	455 (63.6%)	236 (57.7%)	0.03
Age at diagnosis (years)	45 (10)	46 (11)	NS
Duration of diabetes (years)	6 (6)	8 (7)	<0.001
BMI(kg/m2)	25.2 (4.2)	24.8 (4.1)	NS
SBP (mm Hg)	133 (16)	138 (17)	<0.001
DBP (mm Hg)	83 (7)	84 (8)	0.013
FBS (mmol/l)	9.9 (3.6)	11.5 (4.8)	<0.001
HbA1c (%)	9.1 (2.2)	9.7 (2.3)	<0.001
S.cr (µmol/l)	80.4 (29.2)	84.1 (19.4)	0.010
S.chole(mmol/l)	5.0 (1.0)	5.0 (1.1)	NS
S.TGs (mmol/l)	2.2 (1.6)	2.2 (2.0)	NS
HDL-Chole (mmol/l)	1.0 (0.26)	1.0 (0.34)	NS
No (%) with ischaemic heart disease			
Ischaemia	45 (5)	47 (9)	0.002
Infarction	18 (2)	15 (3)	NS

SBP – Systolic blood pressure, DBP – Diastolic blood pressure, FBS – Fasting blood sugar, S.cr – Serum creatinine, Chole – cholesterol, TGs – Triglysrides,

Table 2 the prevalence of microalbuminuria in relation to duration of diabetes.

Duration of diabetes (years)	*Prevalence No (%)*	*Odds ratio (95% CI)*	*p Value*
<5	315/665 (30.4)	—	—
6–10	102/286 (38.1)	1.4 (1.06 to 1.8)	0.02
11–15	65/121 (49.7)	2.3 (1.6 to 3.9)	<0.00001
16–20	21/42 (50.0)	2.3 (1.4 to 3.7)	0.0005
>20	15/32 (46.7)	2.0 (1.04 to 3.8)	0.04

Figure 1 shows the cumulative prevalence of microalbuminuria in relation to duration of diabetes.



Discussion: Various epidemiological and cross sectional studies have reported marked variation in the prevalence of microalbuminuria. In the present study the prevalence of microalbuminuria across the genders were not statistically different Our study revealed age, duration of diabetes, diastolic blood pressure, HbA1c, and fasting plasma glucose as the risk factors for microalbuminuria In our study we observed that the microalbuminuric patients had a significantly higher prevalence of ischaemic heart disease compared with normoalbuminuric patients. The microalbuminuric patients were older and had a longer duration of diabetes compared with the normoalbuminuric group ($p<0.001$). The microalbuminuric patients had significantly increased systolic and

diastolic blood pressure compared to normoalbuminuric subjects (p<0.01). Fasting plasma glucose and HbA1c concentrations were significantly higher in the microalbuminuric group compared with the normoalbuminuric subjects (p<0.001). Serum creatinine (p<0.001) values were found to be significantly higher in the microalbuminuric group. Serum triglycerides and cholesterol values were not significantly different in both groups. Prevalence of all complications were higher among the patients with microalbuminuria compared to the normoalbuminuric subjects (p<0.001). Altogether 27.5% of the newly diagnosed diabetic subjects had microalbuminuria. The prevalence of microalbuminuria increased with increase in duration of diabetes. The odds ratio for microalbuminuria showed a statistically significant increase with increase in duration of diabetes.

Conclusion: The presence of albuminuria is a powerful predictor of renal and cardiovascular risk in patients with type 2 diabetes and hypertension. Physicians should measure urinary albumin excretion in patients with type 2 diabetes and hypertension routinely and be as aggressive in treating this modifiable risk factor as they do blood pressure, cholesterol, or blood glucose

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14

COMPARATIVE STUDY BETWEEN INTRAVENOUS CLONIDINE HYDROCHLORIDE AND INTRAVENOUS ESMOLOL HYDROCHLORIDE IN ATTENUATION OF CARDIOVASCULAR RESPONSES TO LARYNGOSCOPY AND ENDOTRACHEAL INTUBATION

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ABSTRACT

INTRODUCTION: The laryngotracheal stimulation is known to cause reflex sympatho adrenal response with marked increase in heart rate and blood pressure. Arrhythmias can be precipitated. The harmful nature of this response has been noted in patients at risk. Various techniques and drugs have been advocated to decrease the hemodynamic response and none of them is totally acceptable. Hence there is a need to find a simple and effective method. **METHODS And RESULTS :**The present clinical comparative study was done in 50 normotensive, ASA Grade I and II patients scheduled for various elective surgical procedures under general anesthesia with endotracheal intubation. The objectives of the study were to observe the variations of sympathetic response to laryngoscopy and intubation in study groups and to study the effectiveness of Clonidine hydrochloride and Esmolol hydrochloride in attenuating this sympathetic response. All the cases were divided randomly into two groups with 25 patients in each group. Group-I was Clonidine group and Group-II was Esmolol group. **CONCLUSION :**Among the two drugs Esmolol hydrochloride showed better attenuation of sympathetic response than Clonidine hydrochloride which is statistically highly significant.

Introduction

Endotracheal intubation has become an integral part of the anesthetic management and critical care of the patient and has been practiced following its description by Rowbotham and Magill in 1921.

Laryngoscopy and Endotracheal intubation are invariably associated with certain cardiovascular changes such as tachycardia (average 20%) or

bradycardia, rise in blood pressure (average 40-50%) and wide variety of cardiac arrhythmias.

Reid and Bruce in 1940[26] and King Harris in 1951 described the circulatory response to laryngeal and tracheal intubation as reflex sympathoadrenal stimulation.

The cardiovascular response is a reflex phenomenon. This is mediated by vagus (X) & Glossopharyngeal (IX) cranial nerves. Vagus & Glossopharyngeal nerves carry the afferent stimulus from epiglottis & infraglottic region & activate the vasomotor centre to cause a peripheral sympathetic adrenal response to release adrenaline & noradrenaline. The cardiovascular changes should be prevented to maintain the delicate balance between myocardial oxygen supply and demand during induction of general anaesthesia. Various pharmacological methods to attenuate the hemodynamic response to laryngoscopy & endotracheal intubation are - intravenous Lignocaine, Esmolol, Clonidine and Fentanyl.

The present study is undertaken to compare the efficacy of bolus doses of injection Clonidine hydrochloride 1 µg/kg and injection Esmolol hydrochloride 1.5 mg/kg in attenuating the sympathetic response of laryngoscopy and tracheal intubation.

Aims are as follows:

1. To compare and evaluate the efficacy of intravenous bolus doses of injection Clonidine and Esmolol in attenuating the:-
   Changes in Heart rate, changes in Systolic, diastolic and mean arterial blood pressure and Changes in Rate pressure product during laryngoscopy and endotracheal intubation.
2. To study any other adverse effect of injection Clonidine and Esmolol.

Methods

Following approval from institutional review board, this prospective study was carried out on randomly selected 50 patients of ASA grade 1 and 2, aged between 20 to 50 yrs, scheduled for elective surgery requiring general anesthesia with endotracheal intubation.

On the day before surgery, all patients were examined thoroughly and investigated. After proper preanesthetic counseling, a written & informed consent was taken.

Normotensive patients scheduled for elective surgery , with age between 20 to 50 yrs of both sexes and ASA grade 1 or 2 were included for study.

Patients with anticipated difficult intubation , history of known allergies to study drugs and patients on beta blockers or calcium channel blockers or sympatholytic drugs were excluded from the study.

Preanesthetic evaluation of all patients consisted of detailed history, physical examination and routine investigations. All patients were fasted overnight. Vital signs noted in the preoperative room 30 minute before induction were considered as baseline values.On the day of surgery in preoperative room – SBP, DBP and pulse rate were recorded.

On entering the operation theater, IV line secured with 18 G cannula and non-invasive monitors like pulse oximeter, NIBP, ECG monitor were applied. Heart rate, SBP, DBP and MAP were recorded and IV infusion of ringer lactate was started. Inj. Ondansetron 0.08 mg/kg IV , Inj. Glycopyrrolate 0.004 mg/kg IV and Inj. midazolam 0.02 mg/kg IV were given for premedication.

Prior to intubation, patients of group-1 received injection Clonidine hydrochloride 1 µg/kg IV bolus before 10 minutes and group-2 received injection Esmolol hydrochloride 1.5 mg/kg IV bolus before 3 min.

All patients were preoxygenated with 100 % oxygen by mask for 3 min before induction. Induction was achieved with injection Thiopentone sodium 5 mg/kg(2.5 % solution) and injection Vecuronium bromide 0.1 mg/kg intravenously to facilitate intubation. IPPV was given with 100% oxygen. Laryngoscopy and intubation was done after 3 mins of Vecuronium bromide injection using standard Macintosh blade. Oral intubation was done with appropriate sized disposable high volume low pressure portex cuffed endotracheal tube within 15 to 20 sec. (Not more than 30 sec). All the patients were ventilated with Bain's circuit and anesthesia was maintained with O_2 (50%), N_2O (50%), Sevoflurane (1.0-1.5%) & injection Vecuronium bromide. At the end of surgery anesthesia was reversed with injection Neostigmine 0.05 mg/kg IV and injection Glycopyrollate 0.008 mg/kg IV.

Intraoperative vitals were maintained using ECG, pulse oximeter, NIBP and capnography. HR, SBP, DBP and MAP were recorded in all patients – 30 min before induction, after pre medication, after study drug, during intubation and for every 1 min, 3 min, 5 min, 7 min,10 min and 15 min after intubation during which no stimulus was given to the patients.An observation was made related to post-operarive adverse effects of the drugs and anesthesia related problems and were attended appropriately.

Statistical analysis

Descriptive data of both groups were compared by unpaired "t" test. For all the tests "p" value of less than 0.05 was considered as statistically significance.

Results

In this study two groups were comparable with respect to age , gender , weight and vitals in table -I.

Table – 1
Shows the mean value of age, weight and vitals of patients in both groups.

Measurable Parameters	Group-I (Clonidine Group)	Group-II (Esmolol Group)
No. of Patients	25	25
Age (in years)	28 ± 6	31 ± 8
Male/Female	14 /11	14 /11
Weight (kgs.)	57 ± 6	59 ± 7
Basal Pulse rate (bpm)	87 ± 10	86 ± 14
SBP (mm of Hg)	126 ± 8	124 ± 12

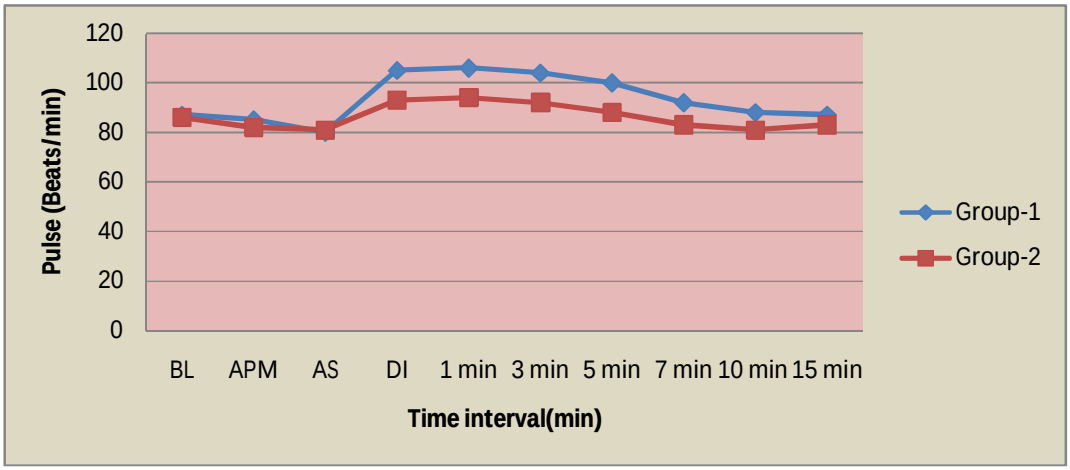
DBP (mm of Hg)	84 ± 5	82 ± 7
MAP (mm of Hg)	98 ± 6	96 ± 6
RPP (bpm*mm of Hg)	10962	10664

Table – 2
Surgery distribution in both groups.

Surgery	Group – I		Group – II	
	No. of Pts.	%	No. of Pts.	%
MTP + Lap. TL	2	8	2	8
Tympanoplasty	3	12	3	12
Exp. Laprotomy	3	12	3	12
Spine surgery	1	4	1	4
Humerus Plating	1	4	1	4
Lap. Cholecystectomy	4	16	4	16
Lap. Appendictomy	3	12	3	12
Ureterolithotomy	2	8	2	8
Hemithyroidectomy	2	8	2	8
Pyelolithotomy	1	4	1	4
Diagnostic Laproscopy	2	8	2	8
FESS	1	4	1	4

Table – 3
Mean Pulse Rate Rise (Beats / min)

Recording Interval	Group – I		Group – II		P VALUE
	Beats/Min	%	Beats/min	%	
BL	87 ± 10	-	86 ± 14	-	>0.05
APM	85 ± 10	-	82 ± 12	-	>0.05
AS	80 ± 09	-8	81 ± 13	-7	>0.05
DI	105 ± 17	20	93 ± 15	8	<0.05
1 min	106 ± 16	22	94 ± 12	9	<0.05
3 min	104 ± 16	18	92 ± 12	6	<0.05
5 min	100 ± 17	15	88 ± 11	2	<0.05
7 min	92 ± 13	6	83 ± 10	-	<0.05
10 min	88 ± 12	-	81 ± 10	-	<0.05
15 min	87 ± 11	-	83 ± 09	-	>0.05



Mean Pulse Rate Rise (Beats / min)

BL – Base line
APM - After premedication
AS - After study drug
DI - During intubation

1 min- 1 Min. after intubation
3 min- 3 Min. after intubation
5 min- 5 Min. after intubation
7 min- 7 Min. after intubation
10 min– 10 Min. after intubation
15 min- 15 Min. after intubation

Pulse Rate (PR) :

In present study, preoperative baseline mean pulse rate in Group-I was 87 beats/minute and in Group-II was 86 beats/minute.

During laryngoscopy and endotracheal intubation mean pulse rate increased by 18 beats/min in Group-I and 7 beats/minute in Group-II.

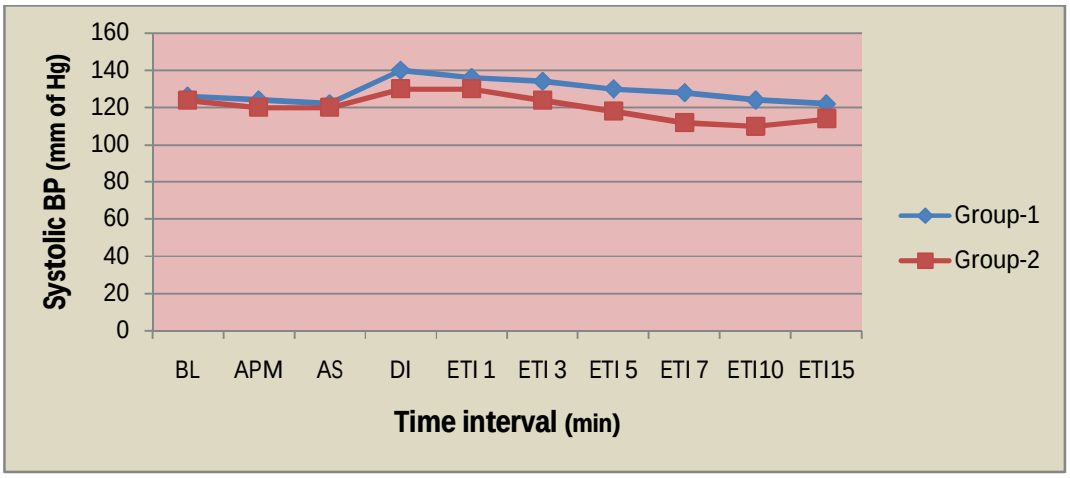
The above table show that in comparison to Group-I, there was no significant rise in pulse rate after laryngoscopy and intubation in Group-II and it comes to the baseline level within 5-7 minutes post intubation.

Table-4

Rise in systolic blood pressure (mm of Hg)

Recording Interval	Group – I		Group – II		P VALUE
	mm of Hg	%	mm of Hg	%	
BL	126 ± 8	-	124 ± 12	-	>0.05
APM	124 ± 9	-	120 ± 12	-	>0.05
AS	122 ± 8	-3	120 ± 12	-3	>0.05
DI	140 ± 7	11	130 ± 12	5	<0.05
1 min	136 ± 6	8	128 ± 14	4	<0.05
3 min	134 ± 9	7	124 ± 14	-	<0.05
5 min	130 ± 8	3	118 ± 12	-	<0.05
7 min	128 ± 8	6	112 ± 12	-	<0.05
10 min	124 ± 7	2	110 ± 10	-	<0.05

15 min	122 ± 6		114 ± 10	-	<0.05



Systolic Blood Pressure (SBP):

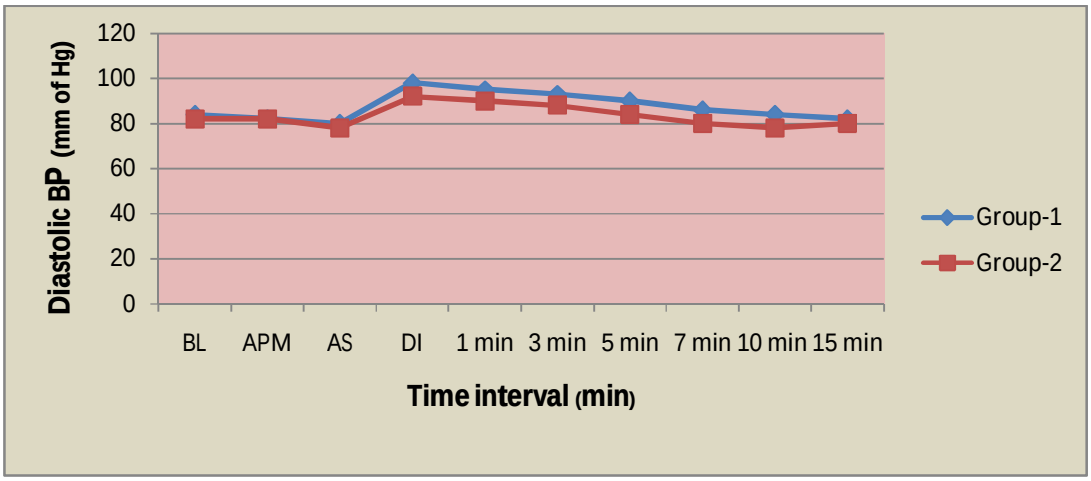
In present study, preoperative baseline SBP in Group-I was 126 mm of Hg and in Group-II was 124 mm of Hg. During laryngoscopy and endotracheal intubation mean SBP increased by 14 mm of Hg in Group-I and increased by 6 mm of Hg in Group-II.

The above table suggest that in Group-II, there was no significant rise in SBP during laryngoscopy and endotracheal intubation in comparision to Group-I and it comes to baseline within 5 minutes.

Table-5
Rise in Diastolic Blood Pressure (mm of Hg)

Recording Interval	Group – I		Group – II		P value
	mm of Hg	%	mm of Hg	%	
BL	84 ± 5	-	82 ± 7	-	>0.05
APM	82 ± 5	-	82 ± 7	-	>0.05
AS	80 ± 5	-5	78 ± 7	-5	>0.05
DI	98 ± 6	17	92 ± 9	12	<0.05
1 min	95 ± 7	15	90 ± 8	10	<0.05
3 min	93 ± 7	10	88 ± 8	7	<0.05
5 min	90 ± 7	7	84 ± 8	-	<0.05
7 min	86 ± 6	2	80 ± 9	-	<0.05
10 min	84 ± 5	-	78 ± 7	-	<0.05
15 min	82 ± 6	-	80 ± 7	-	>0.05

Rise in Diastolic Blood Pressure (mm of Hg)



Diastolic Blood Pressure (DBP):

In present study, preoperative baseline DBP in Group-I was 84 mm of Hg and in Group-II was 82 mm of Hg.

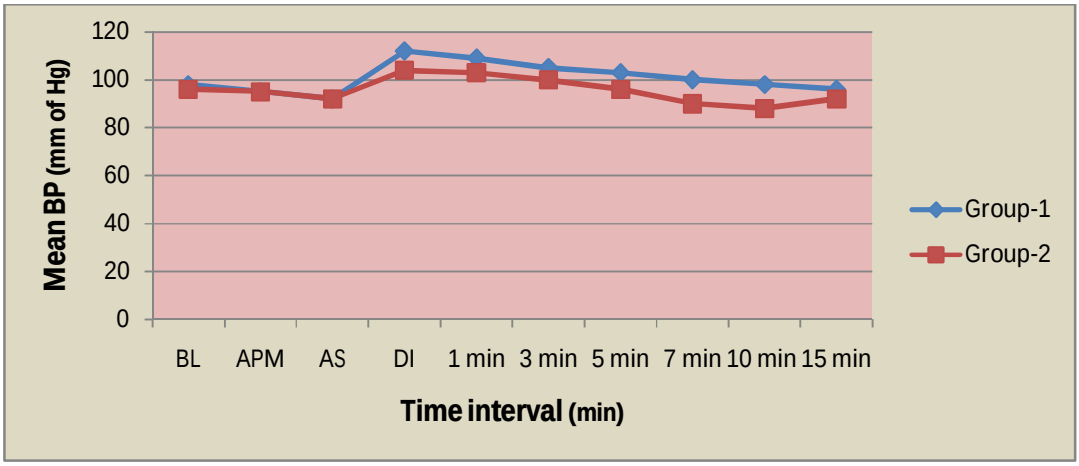
During laryngoscopy and endotracheal intubation mean DBP increased by 14 mm of Hg in Group-I and increased by 10 mm of Hg in Group-II.

The above table suggest that in Group-II there was no significant rise in DBP after intubation and it comes to baseline within 7-10 minutes.

Table–6
Rise in Mean Arterial Pressure (mm of Hg)

Recording Interval	Group – I		Group – II		P VALUE
	mm of Hg	%	mm of Hg	%	
BL	98 ± 6	-	96 ± 6	-	>0.05
APM	95 ± 5	-	95 ± 6	-	>0.05
AS	92 ± 8	-6	92 ± 7	-5	>0.05
DI	112 ± 5	14	104 ± 7	8	<0.05
1 min	109 ± 6	11	103 ± 8	7	<0.05
3 min	105 ± 7	7	100 ± 7	5	<0.05
5 min	103 ± 7	5	96 ± 7	-	<0.05
7 min	100 ± 8	2	90 ± 6	-	<0.05
10 min	98 ± 8	-	88 ± 6	-	<0.05
15 min	96 ± 8	-	92 ± 6	-	>0.05

Rise in Mean Arterial Pressure (mm of Hg)



Mean Arterial Pressure (MAP):

In present study, preoperative baseline MAP in Group-I was 98 mm of Hg and Group-II was 96 mm of Hg.

During laryngoscopy and endotracheal intubation mean MAP increased by 14 mm of Hg in Group-I and increased by 8 mm of Hg in Group-II.

The above table suggests that in Group-II there was no significant rise in MAP after intubation in comparision to Group-I.

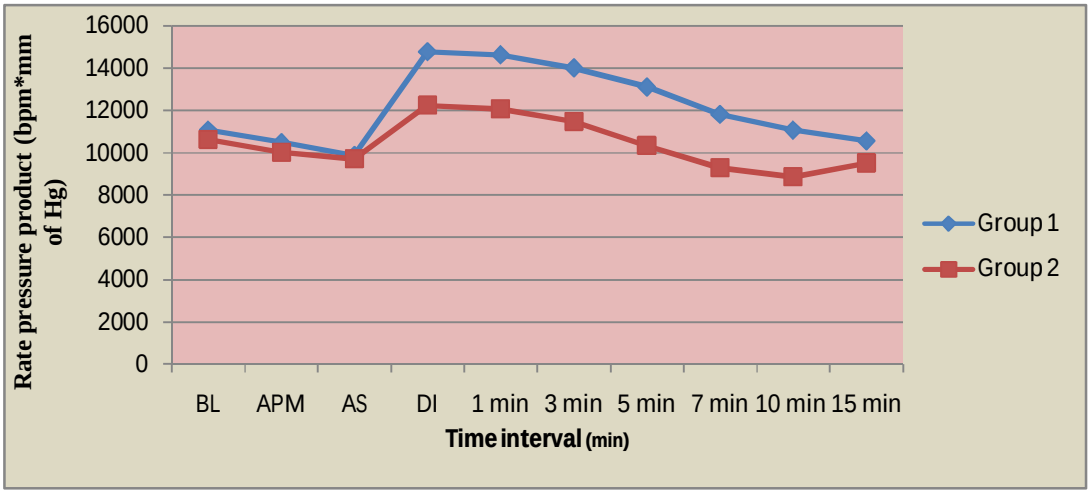
Rate pressure product:

Rate Pressure Product (RPP) = Heart Rate (beats/min) * Systolic Blood Pressure (mm hg)

RPP will be a direct indication of the energy demand of the heart and thus a good measure of the energy consumption of the heart. Rate pressure product allows us to calculate the internal workload or hemodynamic response.

Table–7
Rise in Rate pressure product (bpm*mmHg)

Recording Interval	Group – I		Group – II	
	Bpm*mm of Hg	%	Bpm*mm of Hg	%
BL	11070	-	10627	-
APM	10489	-	10017	-
AS	9872	-	9714	-
DI	14778	34	12252	13
1min	14632	31	12075	14
3min	14016	27	11473	6
5min	13115	18	10342	-
7min	11820	7	9286	-
10min	11073	-	8862	-
15min	10561	-	9528	-



Rate pressure product (RPP):

In present study, preoperative baseline RPP in Group-I was 11070 bpm*mmHg and in Group-II was 10627 bpm* mmHg.

During laryngoscopy and endotracheal intubation mean RRP increased by 34% in Group-I and increased by 13% in Group-II.

The above table suggests that in Group-II, there was no significant rise in RPP after intubation in comparision to Group-I and it comes to baseline within 5 minutes.

Complications

No major complication like hypotension, bradycardia, arrhythmias or ischemic changes was found in any patients.

Discussion

Esmolol is an ultra short acting B_1 cardio selective adrenergic receptor blocking agent. It was introduced in United States in 1987 by Erhardt et al.Esmolol blocks the agonistic effect of the sympathetic neurotransmitters by competing for receptor binding sites. It predominantly blocks the B_1 receptors in cardiac tissue. Anti arrhythmic activity is due to blockage of adrenergic stimulation of cardiac pacemaker potentials.

Clonidine is a centrally acting selective partial α2 adrenergic agonist (alpha2:alpha1- 220:1). It stimulates α2 adrenergic inhibitory neurons in medullary vasomotor centre. This causes decrease in sympathetic nervous system outflow from CNS to peripheral tissues causing peripheral vasodilatation and decrease in systemic blood pressure, heart rate and cardiac output.

Endotracheal intubation and laryngoscopy is associated with rise in blood pressure, heart rate and cardiac dysrhythmias. **Reid and Bruce (1940)[26]** studied the reflex effect upon the heart during irritation of the respiratory tract. They concluded the same thing.

These above mentioned effects may be short lived but they may have adverse effects in high risk patients with cardiovascular diseases, increased intracranial pressure or anomalies of cerebral vessels.

Many factors like drugs, age, depth of anesthesia, hypoxia, hypercarbia etc. influence the hemodynamic response associated with laryngoscopy and intubation.

We selected the optimal age between 20 to 50 years. We excluded the patients taking antihypertensive drugs as these may decrease the pressure response.

In premedication, Glcopyrrolate was given because it has less chronotropic effect and Midazolam was selected as anxiolytic because it has no effect on the hemodynamic changes to laryngoscopy.

Thiopentone was selected for induction. In normovolemic patients, Thiopentone 5 mg/kg IV can transiently decrease blood pressure and increase the heart rate due to increase in catecholamine levels.

Vecuronium bromide has been found to be more cardio-stable as compared to other depolarizing and non-depolarizing muscle relaxant. So it was selected for study to facilitate intubation.

The appropriate drug to prevent sympathetic response must prevent impairment of cerebral blood flow, avoid arousal of the patient without prolonging the duration of anesthesia. Intravenous Esmolol and Clonidine appear best to fulfill the above criteria.

Shroff PP (2004),Miller DR,Martinaeu RJ (1989)[30] have claimed optimal results while using lesser doses of Esmolol 1.5 mg/kg as compared to 3 mg/kg. They

observed adverse effects like hypotension during induction. This was basis for using smaller dose of Esmolol (1.5 mg/kg) in our study. None of our patients developed side effects.

Lim JM, Kim HK, Chung CK.[21] had examined the effect of Esmolol and Clonidine in attenuating the changes of blood pressure and heart rate by tracheal intubation. Eighty patients were randomly divided into four groups: Group 1 (control, n=20), Group 2 (Esmolol 0.5 mg/kg IV, n=20), Group 3 (Clonidine 4 µg/kg PO, n=20) and Group 4 (Clonidine 4 µg/kg PO and Esmolol 0.5 mg/kg IV, n=20). Esmolol 0.5 mg/kg given as bolus is effective for controlling the increase of heart rate but oral Clonidine is not effective in attenuating increase of heart rate.

In our study, suppression of maximum rise in heart rate by Esmolol was statistically significant when compared with Clonidine ($p < 0.05$) throughout the study period.

U. A. Carabine, P.M.C.Wright, J.P. Howe and J. Moore[6] studied the effects of Clonidine on the blood pressure and heart rate response to tracheal intubation in a placebo-controlled, randomized, double-blind trial. Thirty patients were pretreated with either Clonidine 1.25 µg/kg, or Clonidine 0.625 µg/kg or an equivalent volume of normal saline, given intravenously 15 minutes before induction of anaesthesia. This study indicated that the lower dose (0.625µg/kg) may be the more appropriate, so we have used lower dose of Clonidine hydrochloride (1 µg/kg).

In our study increase in Heart rate, Systolic blood pressure, Diastolic blood pressure and Mean blood pressure are more in Clonidine group then Esmolol group and Clonidine can moderately abolish the increase in either heart rate or blood pressure as stated in above study.

Dr. Elaine joan rodrigues[9] has done a study in which Seventy five ASA I patients with age group of 15 - 50 years posted for elective surgeries selected randomly and divided into three groups with 25 cases in each group. Before laryngoscopy and intubation Group I received no drug, Group II received IV Esmolol 2mg/kg 3 minutes prior, Group III received Clonidine 1.25 µg/kg 15 minutes prior. He found that Esmolol was more effective in controlling stress response than Clonidine.

Fernandez-Galinski S, Bermejo S, Mansilla R[13] studied Forty-five patients scheduled for elective surgery was allotted to one of three groups. They were given either alfentanil 3 µg/min (n = 15); Esmolol 1 mg/kg min (n = 16) or Clonidine 3 µg/kg(-1) (n = 14) as a 10 min infusion. They concluded that Esmolol provided better overall haemodynamic stability.

In another study given in **Ijbamr**[1], which was done to evaluate the comparative efficacy among Lidocaine, Esmolol and Clonidine in attenuating the hemodynamic responses and found that Esmolol 1.5 mg/kg I.V, 3 min prior to oro-tracheal intubation is a better drug to control HR.

Our study was carried out in normotensive patients. A comparative study between normotensive and optimised hypertensive patients could give a better insight for present day clinical practice, where co-morbidities are seen often in younger generation.

Heart rate:

In our study, maximum heart rate increase with Clonidine was 22% and with Esmolol was 9%. Esmolol was statistically significant when compared with Clonidine to control rise in heart rate ($p < 0.05$) throughout the study period.

Systolic blood pressure:

After administration of Esmolol, maximum increase in systolic blood pressure compared to basal value was 5% and with Clonidine was 11%. Esmolol showed significantly better result ($p < 0.05$) throughout the study period.

Diastolic blood pressure:

Maximum increase in diastolic blood pressure compared to basal value was 17% and 12% in Clonidine and Esmolol groups respectively. Attenuation of diastolic blood pressure by Esmolol was more significant than Clonidine hydrochloride ($p < 0.05$) throughout the study period.

Mean arterial blood pressure:

Similarly maximum increase in MAP compared to basal value was 14% and 8% in Clonidine and Esmolol group respectively. The attenuation of MAP by Esmolol was significant when compared with Clonidine ($p < 0.05$).

Rate pressure product:

Shobhana Gupta and Purvi Tank[29] Studied ninety adult ASA I and II patients who underwent elective surgical procedures. Patients were divided into three groups. Group C (control) receiving 10 ml normal saline, group E (Esmolol) receiving bolus dose of Esmolol 2 mg/kg and group F (fentanyl) receiving bolus dose of fentanyl 2 μg/kg intravenously slowly. They found that the RPP during intubation revealed a highly significant ($P<0.001$) increase in group C and group F, whereas the increase was insignificant in group E.

In our study maximum increase in Rate pressure product is 34% in Clonidine group and 14% in Esmolol group. Thus Esmolol is very effective in controlling rise in Rate pressure product then Clonidine. No major complication like hypotension, bradycardia, arrhythmias or ischemic changes was found in any patients.

In present study of comparison between Inj. Clonidine hypochloride (1µg/kg) and inj. Esmolol hypochloride (1.5 mg/kg), Esmolol hypochloride have proved more efficient in reducing pulse rate, SBP, DBP, MAP and RPP then Clonidine hypochloride.

Advantage of Esmolol over Clonidine include significant reduction in tachycardia and hypertension during and after intubation, No respiratory, cardiovascular or central nervous system depression after extubation. Short Elimination half life of 9 minutes and Minimal amount of drug interactions.

Conclusion:

From this study, we concluded that Esmolol hydrochloride was better as compared to Clonidine hydrochloride in attenuation of pressure response to laryngoscopy and endotracheal intubation by suppressing sympathoadrenal reflex activity.

Esmolol hydrochloride 1.5 mg/kg, 3 minute prior to induction is more potent than Clonidine hydrochloride in attenuation of hemodynamic response. It provides consistent and reliable protection against increase in both pulse rate and systolic arterial pressure without any significant adverse effect.

Thus, both Esmolol hydrochloride and Clonidine hydrochloride are safe and effective but Esmolol hydrochloride is more effective in attenuation of hemodynamic response to laryngoscopy and intubation without significant side effects.

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IMPACT OF COMPUTER STRESS ON EYE A COMPARATIVE STUDY

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Introduction: *It is a computer era. All has to use computer. But certain people who are involved in computer profession have to use the computer for a long duration. Such prolong use of computer give significant stress to eyes. Today it is an epidemic of a computer vision syndrome. In this paper, common manifestations, prevention and treatment of computer vision syndrome especially emphasizing the symptom, the dryness of eye will be discussed.*

OBJECTIVE: To find the prevalence of eye problems among the computer user:

MATERIAL AND METHODS: 154 computer users who had exposure to computer screen display greater that six hour per day were assessed and the result were compared with those who were not exposed to computer. The main tools were Personal interview, questionnaire, and general eye examination.

RESULTS: Total six types of eye symptoms were prevailed among the computer users. They are

eye strain/fatigue, Dry eye,, blurred vision,, eye irritation, pain in eye/headache, nechache, backache and other musculoskeletal problems.

We also examined the eye for refractory errors. It was found that all the eye symptoms and refractory errors were statistically significantly more among the computer users compared to computer non users. Amongst the symptoms the most common problem found was eye fatigue/strain followed by dry eye..

CONCLUSION: The dryness of eye was the most common symptom found among the computer uses. Incidentally the problem is potential preventable and medically manageable.For that certain behavioral modification is required i.e.

frequent blinking

wide gaze vision,

regular break/ rest to eye ball.

Certain medicated drops are also useful for symptomatic relief.

Computer mechanics, office environment, lighting, reflexions, glare are also requires due attention to reduce eye stress.

Key word :Computer ,Eye problem, blinking

Introduction:.

It is a digital era. Computer is integrated in each and every field of system may be medical, science ,literature, education, management ,administration... But certain people who are involved in software and computer profession have to use the computer for a long duration. Such prolong use of computer give significant stress to eyes. The reason is that during computer our blinking rate is significantly reduced .we all blink through the day during waking hours .It is sign of waking –consciousness .Blinking is a physiological reflex to keep our eye balls lubricated and keep the eye away from dust ,particles and foreign bodies .During computer use ,the both the eyes are focused on computer screen and during this period ,the blink rate is decreased[from normal 12-15 per minutes to 4-5 per minutes] making our eyes dry and leading to an epidemic of a computer vision syndrome.

Aims and objectives: To find the prevalence of eye problems among the computer users:

MATERIAL AND METHODS:

154 computer users included bank employed, commuter engineers , data entry workers,.**who had exposure to computer screen display greater that six hour per day were assessed and the result were compared with those who were not exposed to computer. The main tools were Personal interview, questionnaire, and general eye examination.**

Permission for conducting the study was obtained from the various offices prior to the initiation of the study. The study subjects were explained the purpose of study and were assured about of the information so obtained.154[N1 group] computer users who had exposure to computer screen greater that six hour per day were assessed for eye problems by questionnaires and the result were compared with those who were not exposed to computer[54 N2 group]. The main tools were Personal interview, questionnaire.

RESULTS: Total five main eye symptoms-signs were examined among the computer users and non users at the end of working hours for

1] Eye strain/fatigue,

2] Dry eye,

3] Blurred vision,

4] eye irritation- red eye,

5] headache,

Prevalence of symptoms among computer uses N1 and not users N2

no	Symptoms	N1= 154	N2 =54
1	eye strain/fatigue	74	36
2	Dry eye	62	14
3	Blurred vision	42	14
4	eye irritation- red eye	16	2.2
5	Headache	43	22
P=<0.05			

Statistical tests: Students t test was used and P value was calculated manually.

Discussion:

The study documented the fact that eye related five symptom-signs were rated significantly more among computer users more than non users. Due to central inhibition of blinking reflex during prolonged use of computer , people ***blink*** less than normal leading to evaporation of tears and fluid coating one eye balls and leading dry eyes . ***Blinking*** produces tears that moisten the eye. Artificial tears have been found to be helpful to ***prevent*** and relieve symptoms of dry eyes that result from prolonged sessions at the ***computer***. Blinking also keeps eyes safe from potentially damaging stimuli, such as bright lights and foreign bodies like dust. When a person gazed long time on computer screen ,he/she also exposes to hazardous effects of bright lights and foreign bodies like dust and even micro organisms. The eyelid provides suction across the **eye** from the tear duct to the entire eyeball to keep it from drying out creating a first line of defense ,as tears have bactericidal effects.

The human visual system is complex and amazingly adaptive ,but poor ergonomics make eyes to strain and leading various eye problems. During extreme commuter work load one blink less and get more work done by visual system but ultimately one has to pay the penalty .

Tear production ,circulation in anterior chamber of eye and drainage has been reviewed

recently by high speed photography and found that the punctal openings are seen to elevate themselves from the lid margin at the start of the closing phase of the blink, allowing their forceful meeting and occlusion by the time the closing lid is halfway down. Completion of lid closure then compresses the canaliculi and lacrimal sac, forcing contained fluid through the drainage system. Thus blink forms a suction-pump like effect in circulating tears. During the latter part of this opening, the punctal areas are seen to "pop' apart suddenly as the vacuum is broken, and tear fluid from the marginal tear strips is drawn into the puncta in the first few seconds following the blink.As per one survey .150 to 200 million Americans, or 90 percent of computer users who work more than three hours a day on the computer are prone to develop computer vision syndrome.The National Eye Institute, again unsurprisingly, recently released data showing a 66 percent increase in the prevalence of myopia in the 25 years since the advent of the personal computer. It is estimated that today at least 75% of all jobs involve some level of computer use; this means three-quarters of the workforce are being exposed to numerous health problems, the same can be said of students and educators who do not go through any day without access to a computer for academic work. The figure for people working with and using computers recreationally is to increase considerably in the coming years so it is crucially important that these problems are identified and resolved sooner rather than later in an effort to reduce if not eradicate these problems.It was found that the Ionizing radiation given off by monitors has severe detrimental effects on the eye and eyesight on a whole, and higher quality monitors with better resolution are recommended . The most common form of Computer Vision Syndrome is a condition termed Dry Eye, which results in itchy, sore and even the illusion that something is stuck in your eye. The human eye basically prefers to look at the objects greater than 6 m away, thus work done on computer demands a close-up view which strains eye muscles and thereby leads to eye fatigue.

CONCLUSION: The *eye fatigue/strain followed by dry eye* **were the most common symptom found among the computer users. Incidentally the problem is potential preventable and medically manageable. For that certain physiological maneuver and behavioral modification is required i.e. frequent blinking ,wide gaze vision, regular break/ rest to eye ball every 10 minutes. If such methods are used regularly one can avoid the use of lubricating drops though it is recommended and useful for symptomatic relief .Computer mechanics, office environment, lighting, reflections, glare also require due attention to reduce eye stress. To day the time is reached that computers are replacing our old pen and note books. The epidemics of computer vision syndrome is inevitable. And occupational health point of view ,the people working in the computer field should be emphasized as a field of concern in public health. In this context it is recommended to implement preventive measures and ergonomics of the working environment of the computer users**

This have a direct impact on their well being of computer users . Hence all the institutions and professionals themselves need to be sensitized regarding the importance of awareness of eye problems , regular eye checkups proper working conditions and preventive measures.

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16

CASE REPORTS

ODONTOAMELOBLASTOMA : A RARE ENTITY CASE REPORT

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ABSTRACT

Odontoameloblastoma is a rare neoplasm of odontogenic origin in which there is proliferation of tissue of the odontogenic apparatus in an unrestrained pattern including complete morphodifferentiation, apposition and even calcification. Till date, around 20 cases have fulfilled the histologic criteria of the current World Health Organization histological classification of odontogenic tumors. It affects predominantly young male patient with slight inclination for occurrence in posterior segment of mandible. Review of literature shows only three reported cases in the anterior mandible. Here, we report a case of OA in the anterior mandible.

Key words: Odontoameloblastoma, Odontogenic tumor, odontome, OA

INTRODUCTION

Odontoameloblastoma (OA) is an extremely rare neoplasm, which is defined by World Health Organization (WHO) and Philipsen & Reichart as “A neoplasm that includes odontogenic ectomesenchyme in addition to odontogenic epithelium that resembles an ameloblastoma (SMA) in both structure and behavior.[1] OA contains an ameloblastomatous component together with odontoma-like elements.[2] This tumor was formerly called ameloblastic odontoma. Thoma et al.[3] described the first

case in 1944 and since the first edition of the WHO Histological Classification of Odontogenic Tumours,[4,5] the OA still appears as a distinct odontogenic neoplasm[6] The term OA was included in the 1971 WHO Histological classification of odontogenic tumors listed the various synonyms as ameloblastic odontoma, soft and calcified odontoma, adamantinoma and calcified mixed odontogenic tumor.[4,7] Till now very few well-documented cases have been reported in the medical literature.[8] we present a case of plexiform ameloblastoma associated with complex odontome involving the mandible.

Observations and result: A 45 year old male patient reporting department of oral medicine and radiology with chief complains of swelling in lower jaw with difficulty in mastication since last 2-3 months. Pt had given history of extraction of 33 to 46 before 6 month. The swelling was smaller in size when first noticed which gradually increased to the present size of 8x4cm with no history of Paresthesia or pus discharge.

Intraoral examination revealed diffuse swelling extending from 35 to 47, obliterating buccal vestibule and lingual sulcus. The swelling was soft to firm, non-tender, non-fluctuant, non-compressible, non-pulsatile with normal overlying mucosa.

On radiographic examination, orthopantomograph revealed multilocular radiolucency from 33 to the 46 and from alveolar crest to the lower border of mandible. Radiolucency is separated by radio-opaque septa and surrounded by corticated border in area of mesial to 46. (Figure 1)

Histopathological examination revealed odontogenic cells arranged in form of anastomosing cords with tall columnar ameloblast like cells at periphery with

stellate reticulum cells. Ameloblast like cells shows reverse polarity and nuclear palisading. **(Figure 3 & 4)** The ameloblastic components intermingled with large areas of conglomerate masses of dentin and cementum is are also seen. **(Figure 5 & 6)**

DISCUSSION

OA is rare, aggressive mixed odontogenic tumor having incidence of 0.5%.[9] It is characterized by the simultaneous occurrence of an ameloblastoma and a compound or complex odontoma in the same tumor mass. The epithelial proliferation forms islands or intermingled cords that produce the follicular or the plexiform patterns typical of ameloblastoma, but unlike conventional ameloblastoma, these induce the production of mineralized dental tissues on the adjacent mesenchymal cells and may respond to these changes with the production of enamel.[10]

OA occurs predominantly in young patients between the age of 6 months to 40 years with a median age of 20.12 year and has a predilection for males.[4,10,11,12] It usually occurs in the posterior segments of either jaw, with a slight inclination for the mandible with predilection for molar premolar region and only three cases have been reported involving the anterior segment of the mandible. In the present case, the patient was a 45 year old and the lesion developed in anterior mandibular area which is a less common age and location of the patient involved. Clinically, OA unveiling as a slow growing painless mass that expands the alveolus and vestibular cortex, and disturbances in occlusion.

Radigraphically, the tumor presents a radiolucent, destructive process that contains calcified structures resembling mature dental tissue. These radiographic

features were also simulate in our cases.[13]

CONCLUSION :

The histopathological features of the OA are complex. There is a proliferating odontogenic epithelium portion similar to that of an ameloblastoma, generally presenting a plexiform or follicular pattern. This epithelial portion appears intermingled with dental tissues of variable degrees of maturity in the form of developing rudimentary teeth, resembling a compound odontoma or conglomerate masses of enamel, dentin and cementum, as seen in a complex odontoma.[2] Histopathologically the presented case is of Plexiform ameloblastoma with complex odontome.

Because of the rarity of OA and its similarity to other odontogenic lesions, a pre-operative diagnosis is difficult to achieve based only on the clinical and radiographic features of the lesion. Nonetheless, oral radiologists and surgeons should be aware of the existence of these odontogenic tumors in order to properly treat and follow-up patients who might present them.

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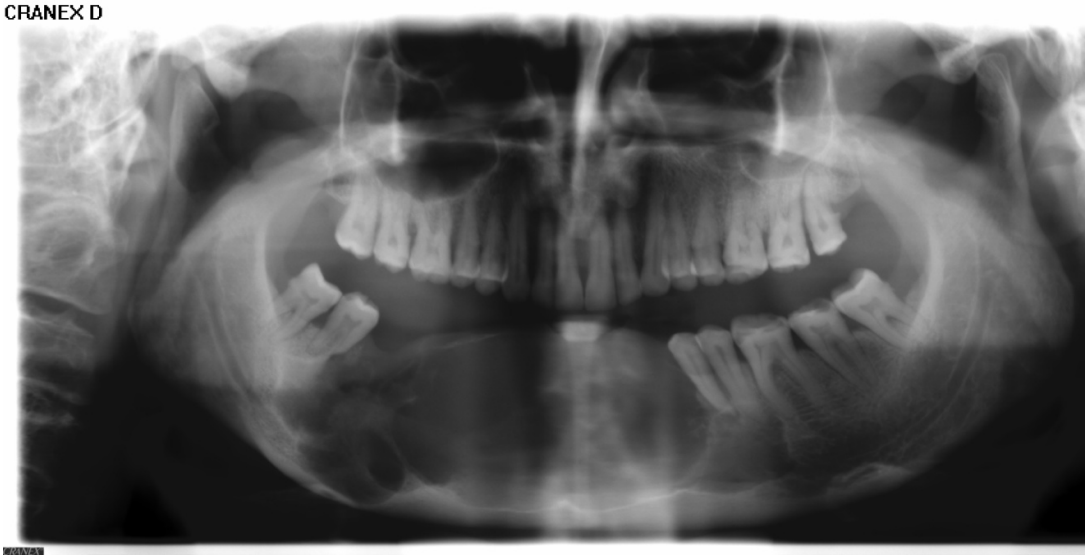
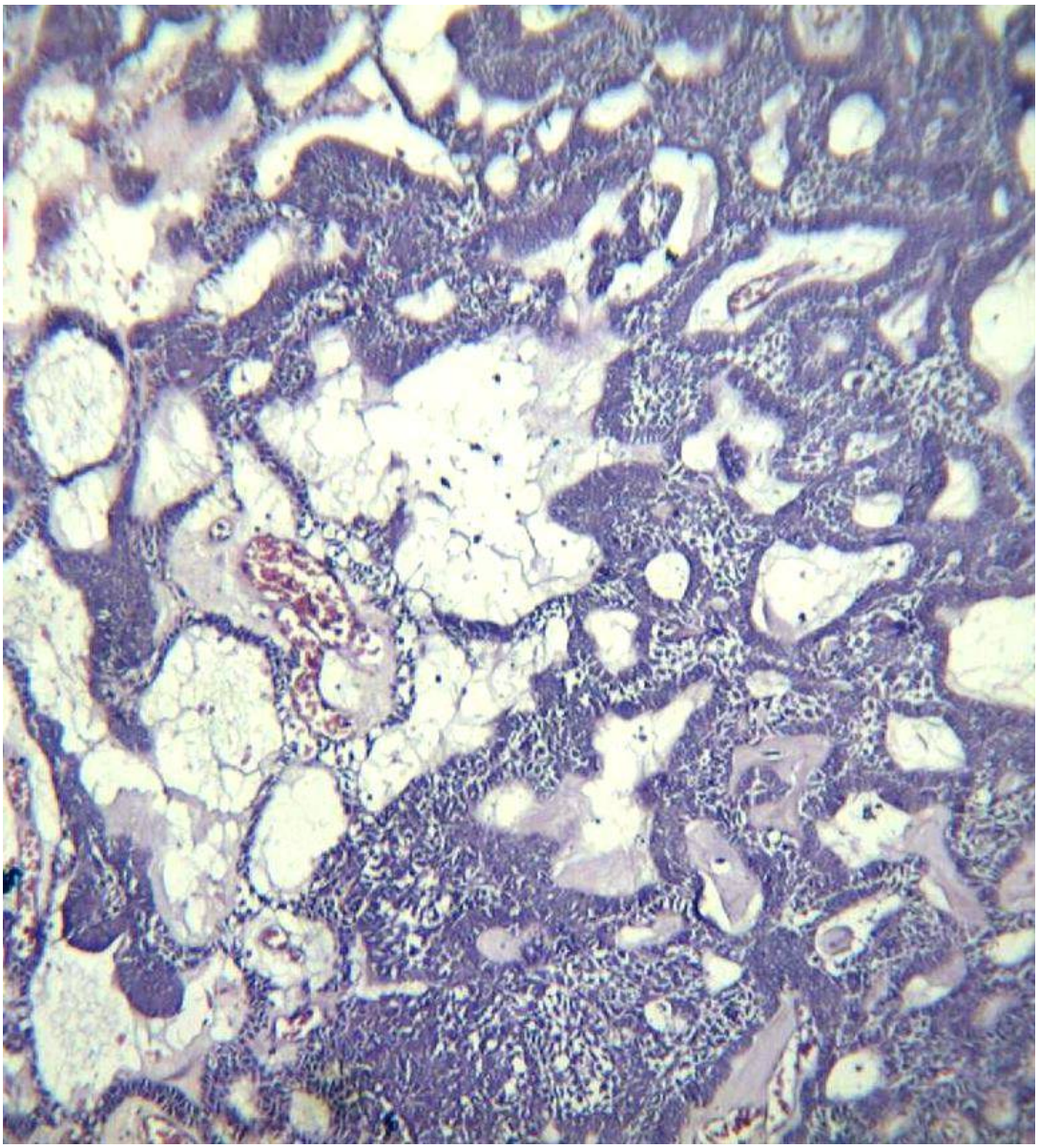
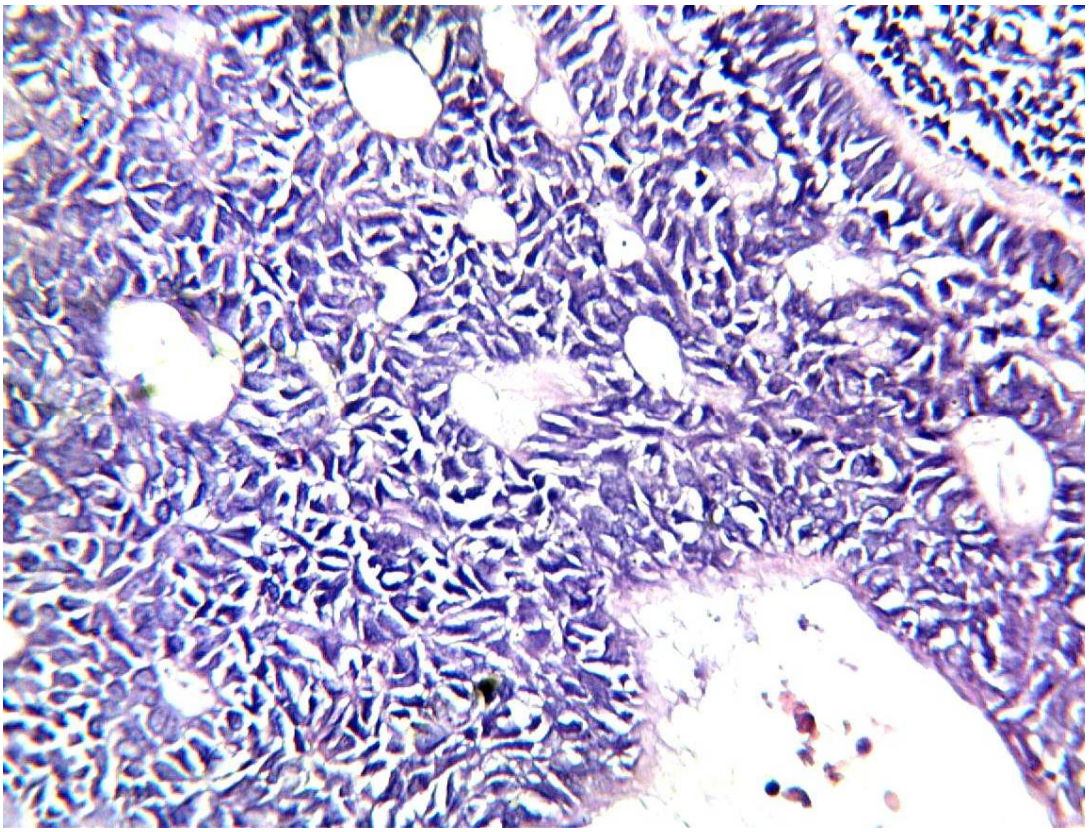
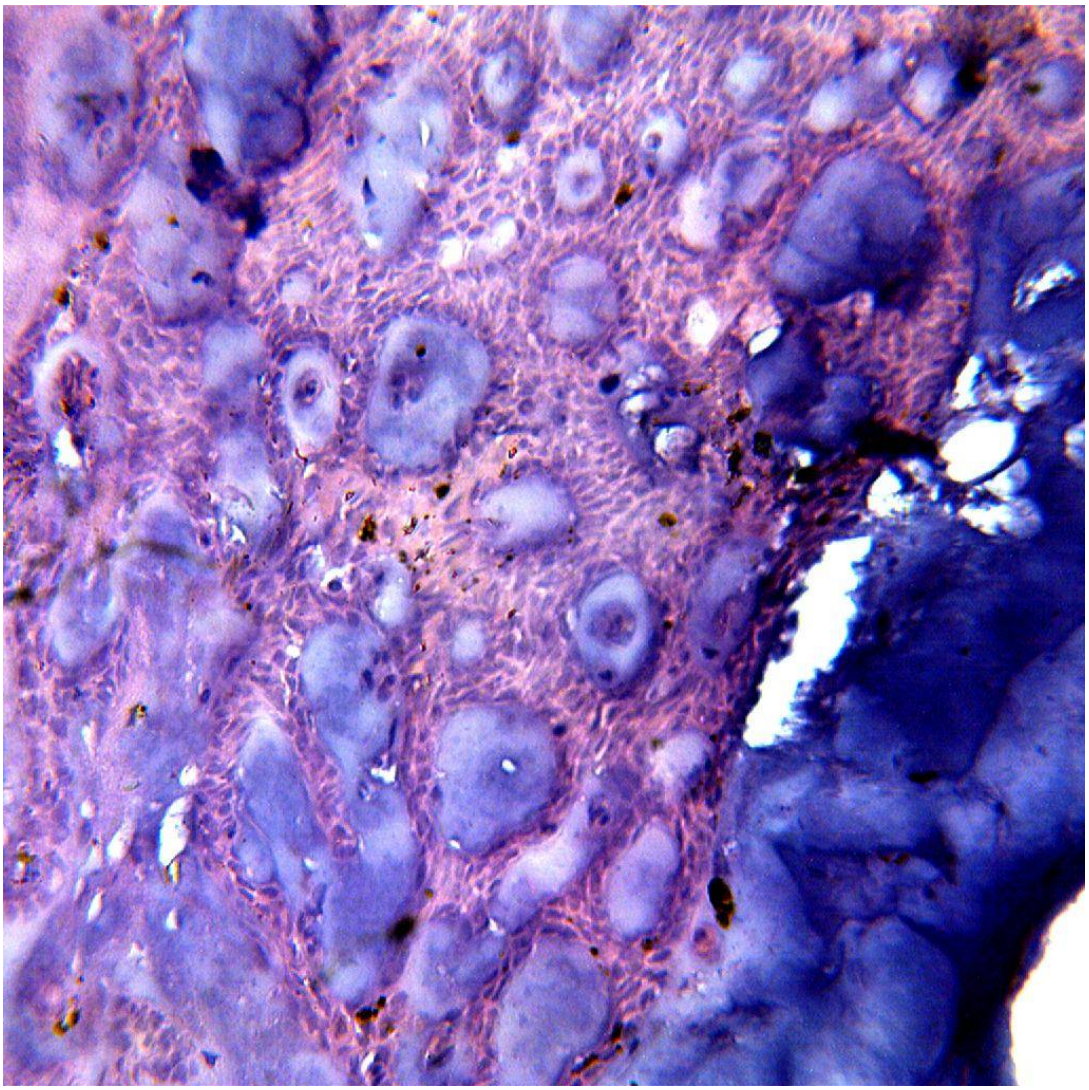
LIST OF ILLUSTRATIONS

SR. NO.	FIGURE	DESCRIPTION
1.	Figure 1	Multilocular radiolucency from 33 to the 46 and to the lower border of mandible. Radiolucency i separated by radio-opaque septa and surround corticated border in area of mesial to 46.
2	Figure 2	A gross tissue specimen of mandible shows les X 3.5 X 3.0 cm in size, soft to firm in consisten creamish white in color
3.	Figure 3	H & E stained section revealed odontogenic ce arranged in form of anastomosing cords with ta columnar ameloblast like cells at periphery with reticulum cells. 10x
4.	Figure 4	Ameloblast like cells shows reverse polarity an palisading. 40x
5.	Figure 5	H & E stained section revealed ameloblastic components intermingled with large areas of conglomerate masses of dentin and cementum









17

RESTORING SEVERELY DECAYED PRIMARY ANTERIOR TEETH USING OMEGA POSTS AND FIBRE POST SYSTEMS A CASE REPORT

CASE REPORT

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ABSTRACT:

Background :Caries in very young children known as Early Childhood Caries (ECC) may be defined according to the American Academy of Pediatric Dentistry "as the presence of one or more decayed, missing (due to caries), or filled tooth surfaces in any primary tooth in a child 71 months of age or younger". Early childhood caries mainly occurs in maxillary primary anterior teeth and if untreated it can lead to pulpal involvement and destruction of coronal tooth structure, these teeth are difficult to restore. In majority of cases, the destruction of the tooth structure involves almost the entire crown, leaving just the root and little crown portion, hence, only dentine left for bonding of the restorative materials **Observation and result** :The newly introduced fibre posts are aesthetic, easy to use and are available in different sizes. In the present study, for purpose of comparison, both types of posts (Fibre and omega shaped stainless steel wire posts) were used to restore the grossly

destructed primary maxillary incisors. This also ensured that both types of posts being in the same oral cavity would be subjected to similar dietary patterns, oral hygiene conditions and occlusal forces. Fibre posts proved to have better retention, which can be due to the chemical and mechanical bonding to the tooth surface. So the fibre post systems seems to be a suitable alternative for the omega posts, due to the better retention and more aesthetic appearance as compared to omega shaped stainless steel wire posts. **Conclusion:** Restoring teeth after endodontic procedures is requisite for multiple reasons and this can be achieved with ease if proper retentive post is selected. This case gives us an idea that the retention of fibre posts is better than the omega shaped stainless steel wire post as well as fibre posts are better aesthetically.

Abbreviations used: ECC, Early Childhood Caries;

Introduction

Caries in very young children known as Early Childhood Caries (ECC) may be defined according to the American Academy of Pediatric Dentistry “as the presence of one or more decayed, missing (due to caries), or filled tooth surfaces in any primary tooth in a child 71 months of age or younger” [1]. Early childhood caries mainly occurs in maxillary primary anterior teeth and if untreated it can lead to pulpal involvement and destruction of coronal tooth structure, these teeth are difficult to restore. In majority of cases, the destruction of the tooth structure involves almost the entire crown, leaving just the root and little crown portion, hence, only dentine left for bonding of the restorative materials [2]. Early loss of the primary anterior teeth may bring about functional problems in mastication and phonetics, lead to the development of parafunctional habits such as tongue thrust, and impair the aesthetic appearance [3].

Formerly, the treatment of the severely damaged primary anterior teeth was based on the removal of these teeth. However, the consequences were dramatic, namely loss of vertical dimension of occlusion, tongue thrusting and mouth breathing habits, which are all the known sources of future malocclusion [4]. Teeth are severely decayed, endodontic treatment and placement of intra-canal posts or retainers become necessary before crown restoration. Posts may be constructed of a variety of materials, including resin composite, metal, and biologic material [5].

In 1990, Duret *et al.* described a non-metallic material for the fabrication of posts based on the carbon-fibre reinforcement principle. Laboratory-based studies have shown that these posts have a high tensile strength and modulus of elasticity, similar to dentine [6]. Another simpler method to provide support to fabricate strip crown is to use Omega loops, which provide a quick, inexpensive and efficient option. The technique of placing Omega loops is quiet simple; it involves the placement of an omega shaped stainless steel wire extension into the entrance of the root canal prior to restoring the crown with a compomer material.

The aim of the present study was to evaluate and compare the efficacy of fibre post with that of omega shaped stainless steel wire posts in restoring severely destroyed maxillary primary anterior teeth.

Observations and result: A 5-years-old male patient reported to the Department of Pedodontics and Preventive Dentistry, Ahmedabad Dental College and Hospital, Ahmedabad with a chief complaint of pain in lower left back tooth region since the past 5 days. Patient's grand mother gave a history of breast feeding for 1 year after which the child was bottle fed for 2 and a half years. Intraoral examination revealed a complete set of deciduous dentition with caries involvement in relation to 55, 54, 53, 52, 51, 61, 62, 63, 64, 65,71,72,73, 74, 75, 81, 82, 83, 84 and 85 (Figure 1, 2, 3).

Intraoral periapical radiographs revealed pulp involvement with 54, 53, 52, 51, 61, 62, 64, 71, 72, 73, 74, 75, 81, 82, 83, 84, 85. Diet analysis, counselling, and oral prophylaxis were done. 54, 64, 74, 75, 84 and 85 were grossly carious and were indicated for pulpectomy followed by a stainless steel crown. 52 and 62 were indicated for pulpectomy, followed by glass fibre-reinforced composite resin posts in and composite build up. 51 and 61 were indicated for pulpectomy, followed by omega posts and composite build up.

Figure 1: Preoperative Intraoral photograph of the maxillary arch

Figure 2: Preoperative Intraoral photograph of the mandibular

Figure 3: Preoperative Intraoral photograph

Treatment of the maxillary anterior was done in two phases:

1. Endodontic phase
2. Restoration phase

Endodontic phase:

Pulpectomy was performed in relation to 51, 52, 61, 62 under local anaesthesia. Caries removal and pulp tissue extirpation was done. The canals were prepared under constant normal saline irrigation, dried with paper points, and the canals were filled with metapex (calcium hydroxide and idoform combination) paste.

Restorative phase:

The crowns of all the maxillary anteriors were severely destructed so for development of proper crown structure, it was decided to restore 51, 61 with fibre post followed by composite restoration and 52, 62 by omega posts followed by composite build up.

Post Insertion

A post space was prepared 2 weeks after endodontic treatment was completed. About 4 mm of the metapex cement was removed and a layer of light cured restorative Glass Ionomer Cement was placed. A 0.7 mm stainless steel wire was bent into a loop in such a way as to allow the ends to be hooked in the entrance of the root canal. The incisal end of the loop of the wire projected 2-3mm above the remaining root structure. The root canal and the remaining coronal tooth structure were etched with 37%

phosphoric acid for 20 seconds. Then the bonding agent was placed and cured for 20 seconds. Composite restorative material of the selected shade was placed in the canal. The loop was inserted in relation to 52, 62 and the fibre reinforced post were inserted in relation to 51, 61. The fibre post and the composite were cured for 60 seconds. The final finishing and polishing of the restoration was done and occlusal interferences were removed (Figure 4). This restorative phase also helped for the psychological rehabilitation of the patient (Figure 5).

Figure 4: Crown build-up

Figure 5: Complete oral and psychological rehabilitation

Discussion

The aim of the present study was to compare the evaluate the clinical efficacy of omega posts compared with fibre post systems. The clinical and radiographic examinations proved both techniques are efficient. Restoration of deciduous anterior teeth with severe loss of coronal structure is a challenging task for the dentists. The main aim is to avoid extraction of these teeth and restore them, so that child is able to perform normal masticatory function and good esthetics is also maintained. To provide good restoration is not always easy as in most of the cases there is very minimal tooth structure left, and also due to the fact that adhesion of bonding agent to primary teeth is not very satisfactory [7]. The use of an intracanal post in endodontically treated teeth improves the retention of definitive restoration [8].

There is a variety of root posts used in pediatric dentistry, each having its own advantages and disadvantages. A resin composite post is build up directly, resin composite short post placement, alpha, or omega shaped orthodontic wires, stainless steel pre fabricated posts, nickel- chromium cast posts with macroretentive elements, natural teeth from a tooth bank or reinforced fibres. Although metal posts are indicated for primary teeth but because of their color metal post do not meet the aesthetic requirement. The use of omega-shaped stainless orthodontic wire as an intracanal post is also simple introduced by Mortada and King [5]. The biggest advantage is that wire does not cause any internal stresses in the root canal as it is incorporated in the restorative material mainly and it can be done with minimal chair side time [9]. However, metallic posts such as omega shaped stainless steel wire post requires masking with an opaque resin. This may in turn affect the final appearance of the restoration [10].

The newly introduced fibre posts are aesthetic, easy to use and are available in different sizes. In the present study, for purpose of comparison, both types of posts (Fibre and omega shaped stainless steel wire posts) were used to restore the grossly destructed primary maxillary incisors. This also ensured that both types of posts being in the same oral cavity would be subjected to similar dietary patterns, oral hygiene conditions and occlusal forces. Fibre posts proved to have better retention, which can be due to the chemical and mechanical bonding to the tooth surface. So the fibre post systems seems to be a suitable alternative for the omega posts, due to the better

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Conclusion

Restoring teeth after endodontic procedures is requisite for multiple reasons and this can be achieved with ease if proper retentive post is selected. This case gives us an idea that the retention of fibre posts is better than the omega shaped stainless steel wire post as well as fibre posts are better aesthetically.

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17

IMPACT OF COMPUTER STRESS ON EYE A COMPARATIVE STUDY

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Introduction: *It is a computer era. All has to use computer. But certain people who are involved in computer profession have to use the computer for a long duration. Such prolong use of computer give significant stress to eyes. Today it is an epidemic of a computer vision syndrome. In this paper, common manifestations, prevention and treatment of computer vision syndrome especially emphasizing the symptom, the dryness of eye will be discussed.*

OBJECTIVE: To find the prevalence of eye problems among the computer user:

MATERIAL AND METHODS: 154 computer users who had exposure to computer screen display greater that six hour per day were assessed and the result were compared with those who were not exposed to computer. The main tools were Personal interview, questionnaire, and general eye examination.

RESULTS: Total six types of eye symptoms were prevailed among the computer users. They are

eye strain/fatigue, Dry eye,, blurred vision,, eye irritation, pain in eye/headache, nechache, backache and other musculoskeletal problems.

We also examined the eye for refractory errors. It was found that all the eye symptoms and refractory errors were statistically significantly more among the computer users compared to computer non users. Amongst the symptoms the most common problem found was eye fatigue/strain followed by dry eye..

CONCLUSION: **The** *eye fatigue/strain followed by dry eye* **were the most common symptom found among the computer users.**. *Incidentally the problem is potential preventable and medically manageable. For that certain physiological behavioral modification is required i.e. frequent blinking ,wide gaze vision,, regular break/ rest to eye ball. Certain medicated drops are also useful for symptomatic relief. Computer mechanics, office environment, lighting, reflexions, glare are also requires due attention to reduce eye stress.*

Key word :Computer ,Eye problem, blinking

Introduction:.

It is a digital era. Computer is integrated in each and every field of system may be medical, science ,literature, education, management ,administration... But certain people who are involved in software and computer profession have to use the computer for a long duration. Such prolong use of computer give significant stress to eyes. The reason is that during computer our blinking rate is significantly reduced .we all blink through the day during waking hours .It is sign of waking –consciousness .Blinking is a physiological reflex to keep our eye balls lubricated and keep the eye away from dust ,particles and foreign bodies .During computer use ,the both the eyes are focused on computer screen and during this period ,the blink rate is decreased[from normal 12-15 per minutes to 4-5 per minutes] making our eyes dry and leading to an epidemic of a computer vision syndrome.

Aims and objectives: To find the prevalence of eye problems among the computer users:

MATERIAL AND METHODS:

154 computer users included bank employed, commuter engineers , data entry workers,.**who had exposure to computer screen display greater that six hour per day were assessed**

and the result were compared with those who were not exposed to computer. The main tools were Personal interview, questionnaire, and general eye examination.

Permission for conducting the study was obtained from the various offices prior to the initiation of the study. The study subjects were explained the purpose of study and were assured about of the information so obtained.154[N1 group] computer users who had exposure to computer screen greater that six hour per day were assessed for eye problems by questionnaires and the result were compared with those who were not exposed to computer[54 N2 group]. The main tools were Personal interview, questionnaire.

RESULTS: Total five main eye symptoms-signs were examined among the computer users and non users at the end of working hours for

1] Eye strain/fatigue,

2] Dry eye,

3] Blurred vision,

4] eye irritation- red eye,

5] headache,

Prevalence of symptoms among computer uses N1 and not users N2

no	Symptoms	N1= 154	N2 =54
1	eye strain/fatigue	74	36
2	Dry eye	62	14
3	Blurred vision	42	14
4	eye irritation- red eye	16	2.2
5	Headache	43	22
P=<0.05			

Statistical tests: Students t test was used and P value was calculated manually.

Discussion:

The study documented the fact that eye related five symptom-signs were rated significantly more among computer users more than non users. Due to central inhibition of blinking reflex

during prolonged use of computer , people ***blink*** less than normal leading to evaporation of tears and fluid coating one eye balls and leading dry eyes . ***Blinking*** produces tears that moisten the eye. Artificial tears have been found to be helpful to ***prevent*** and relieve symptoms of dry eyes that result from prolonged sessions at the ***computer***. Blinking also keeps eyes safe from potentially damaging stimuli, such as bright lights and foreign bodies like dust. When a person gazed long time on computer screen ,he/she also exposes to hazardous effects of bright lights and foreign bodies like dust and even micro organisms. The eyelid provides suction across the **eye** from the tear duct to the entire eyeball to keep it from drying out creating a first line of defense ,as tears have bactericidal effects.

The human visual system is complex and amazingly adaptive ,but poor ergonomics make eyes to strain and leading various eye problems. During extreme commuter work load one blink less and get more work done by visual system but ultimately one has to pay the penalty .

Tear production ,circulation in anterior chamber of eye and drainage has been reviewed recently by high speed photography and found that the punctal openings are seen to elevate themselves from the lid margin at the start of the closing phase of the blink, allowing their forceful meeting and occlusion by the time the closing lid is halfway down. Completion of lid closure then compresses the canaliculi and lacrimal sac, forcing contained fluid through the drainage system. Thus blink forms a suction-pump like effect in circulating tears. During the latter part of this opening, the punctal areas are seen to "pop' apart suddenly as the vacuum is broken, and tear fluid from the marginal tear strips is drawn into the puncta in the first few seconds following the blink.As per one survey .150 to 200 million Americans, or 90 percent of computer users who work more than three hours a day on the computer are prone to develop computer vision syndrome.The National Eye Institute, again unsurprisingly, recently released data showing a 66 percent increase in the prevalence of myopia in the 25 years since the advent of the personal computer. It is estimated that today at least 75% of all jobs involve some level of computer use; this means three-quarters of the workforce are being exposed to numerous health problems, the same can be said of students and educators who do not go through any day without access to a computer for academic work. The figure for people working with and using computers recreationally is to increase considerably in the coming years so it is crucially important that these problems are identified and resolved sooner rather than later in an effort to reduce if not eradicate these problems.It was found that the Ionizing radiation given off by monitors has severe detrimental effects on the eye and eyesight on a whole, and higher quality monitors with better resolution are recommended . The most common form of Computer Vision Syndrome is a condition termed Dry Eye, which results in itchy, sore and even the illusion that something is stuck in your eye. The human eye basically prefers to look at the objects greater than 6 m away, thus work done on computer demands a close-up view which strains eye muscles and thereby leads to eye fatigue.

CONCLUSION: The *eye fatigue/strain followed by dry eye* **were the most common symptom found among the computer users. Incidentally the problem is potential preventable and medically manageable. For that certain physiological maneuver and behavioral modification is required i.e. frequent blinking ,wide gaze vision, regular break/ rest to eye ball every 10 minutes. If such methods are used regularly one can avoid the use of lubricating drops though it is recommended and useful for symptomatic relief .Computer**

mechanics, office environment, lighting, reflections, glare also require due attention to reduce eye stress. To day the time is reached that computers are replacing our old pen and note books. The epidemics of computer vision syndrome is inevitable. And occupational health point of view ,the people working in the computer field should be emphasized as a field of concern in public health. In this context it is recommended to implement preventive measures and ergonomics of the working environment of the computer users

This have a direct impact on their well being of computer users . Hence all the institutions and professionals themselves need to be sensitized regarding the importance of awareness of eye problems , regular eye checkups proper working conditions and preventive measures.

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