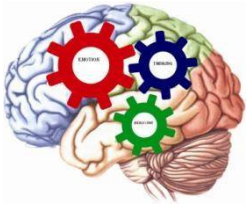

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INDEX

Original articles

Dr **PanchaniNirav,** Dr **Gupta Ankur ,** Dr **Naxane Seema,** Dr **Tamakuwala Krunal,** Dr **Rawal Jayesh**

3 A STUDY OF REASONS OF NON-COMPLIANCE TO PSYCHIATRIC TREATMENT

Dr LakshmannDutt; Dr KalravMistry Consultant psychiatrist, ex registrar, V.S hospital) Dr Zankhanjetfire M .Resident doctor, V.S hospital

4 **POST-OPERATIVE ASTIGMATISM AFTER SICS AND PHACOEMULSIFICATION.**

Dr.Vijay Damor, Dr.Anupama Mahant,

5 Our Experience in Supraclavicular Brachial Plexus Block by Ultrasonography compared with Conventional Method in Upper Limb Surgeries

Dr. Jagruti Satasiya1,Dr. Kalashree Ravalji2, Dr. Charu J. Pandya3

6 COLOR DOPPLER EXAMINATION OF OPHTHALMIC ARTERY IN NORMAL

TENSION GLAUCOMA.

Dr Anupama Mahant, Dr Vijay Damor.

7 COMPARISON OF EVEROLIMUS-ELUTING AND SIROLIMUS-ELUTING CORONARY STENTS IN 1 YEAR CLINICAL AND ANGIOGRAPHIC FOLLOW UP: A RETROSPECTIVE COHORT STUDY.

Dr Gupta Ankur , Dr Panchani Nirav, Dr Tamakuwala Krunal, Dr Rawal Jayesh

8 Study of pulmonary functions in Yoga performing group and non-Yogics

Dr. Nilay A. Kapadia, Dr. Ashok Goswami, Dr. Prakash Chaudhari, Dr. Kalpan Desai Dr Janardan V Bhatt

9 A Comparative Study on Gender Based Alteration in Color Perception in young adults

Dr Kalpan R Desai,Dr Prakash Chaudhari,Dr Hemendra Suthar

10 STUDY OF EFFECT OF SMOKING ON SERUM CALCIUM LEVELS IN HEALTHY MALE INDIVIDUALS

Dr Prakash Chaudhari*,Dr Ashok Goswami, Dr Hemendra Suthar*, Dr Kalpan Desai***

11 Study of Electrocardiographic changes with BMI in normal individuals

Dr Hemendra Suthar*,Dr Ashok Goswami, Dr Kalpan Desai*,Dr Prakash Chaudhari***

12 ANALYSIS OF BODY DONATION IN THE SAURASHTRA REGION: A RETROSPECTIVE STUDY

Sharma V*, Zaveri KK, Patel MM**, Singel TC***, Patel RK**, Patel RM**, Chudasama JA****

13 IMPACT OF PEER ASSISTED LEARNING ON YEAR 1 MEDICAL STUDENTS

PEER ASSISTED LEARNING MODULE AS AN TEACHING LEARNING METHOD

Dr Janardan V Bhatt

14 EMG study in cases of maturity onset diabetes neuropathy

Dr Jinal Pandya*, Dr. Neeraj Mahajan Dr Urvashi Kapadia*****

15 Medical technology
Wearable medical devices in medical sciences

16 **QUIZ NATIONAL SOCIETY OF INTEGRATATION** OF APPLIED BASIC MEDICAL SCIENCES

1

Editorial:

APTITUDE TESTS IN MEDICAL EDUCATION

Dr Janardan Bhatt

In India, Medical education is proud of both for in past and present. About 5 to 10 percentage of doctors in US and UK are medical graduates of India .Many of them are eminent doctors medical scientists and specialists . India is a country producing largest number of medical graduates in world. Many foreigners are coming India only for medical /treatment purposes only . Long before the world started talking about Harvard and Cambridge, when Royal Colleges were not heard of, India had given birth to a civilization that gave immense importance to the medical sciences as well as doctors.. Gurukuls of Vedic period provided training in medical science. It has been claimed that students came from distant lands to study medicine in Nalanda and Taxsila. Most of the rulers took steps to encourage medical education. After the arrival of the British the modern medicine was introduced. The first medical college was set up in 1835 in Kolkata. Many more were established in the 19th and 20th century. To day in India there ar more than 400 medical colleges. And it is trend the increasing number medical colleges and number of medical students in many medical colleges to make doctor-patient ratio near the WHO standard .To solve this problem a new issues has raised i.e. method of Selection of students , assessment System, Syllabus, Skilled Teachers**,** teacher student ratio ,privatization. For making better medical education System **s**ignificant measures have already also taken i.e. reforms of curriculum for creating socially committed and skilled doctors ,competency based medical education ,ATCOM model for communication skills and leadership , Problem based learning , use of newer teaching technology in class rooms integration of various medical subjects. Medical research is also encouraged along with new medical teaching methods and clinical skills .These measures are really welcome and greatly appreciated by medical colleges .Simultaneously it is the responsibility medical education system to see that doctors with right attitude and right aptitude are produced. And this issue can be well tackled by implementing the aptitude tests at level of premedical admission. It is worth to note the observations by experts seriously that the relationship of preadmission academic grades as implemented now is not well correlated to long term outcome measures doctors performance and further clarification is needed .Some academicians also have observed that the grades of students may not be well associated with their performance as future doctor. As present majority of preadmission test assess cognitive domain in the form of attending Multiple choice questions .At this stage aptitude tests can be implicated.

Aptitude tests are the tests designed to measure the ability of a person to develop skill. In many parts of UK and many countries, the aptitude has been introduced in UG and even PG admission including selection teaching faculties. Many Medical College Admission Tests (MCAT) are available and each need validation and modification for further use in particular country' need. Aptitude for medical education require the professional and social need of a countries and values

of that time and context. Ideal aptitude test find out the latent, potential, the undeveloped capacities of students. The aptitude tests try to find our the ability to acquire skill and knowledge unconsciously. Aptitude can be inborn and develop during early growth and development period of life .Every one have different aptitude but it can not change with training that is why aptitude tests are required before medical admission. Aptitude is totally different faculty of mind and brain and independent of intelligent, memory ….There are different types of aptitude and all may exist in different proportion in an individual .Aptitude is an existing abilities which determine future of an individual .Such aptitude can be further developed by training. It is a potential energy and by proper training it is converted in dynamic energy.

The aptitude tests are useful for education organization for admission and selection of students and staff with right aptitude especially for professional education i.e. medical education. For both physical and mental i.e. objective aptitude tests have been developed and more are under evaluation and research. There are about thirteen aptitudes depending upon abilities i.e. verbal, mechanical, social, musical….So each and every individual have some form of in built aptitude and if given opportunities to develop that aptitude the individual is successful in that field and vice a verse. It is like doing the thing one like and not doing which one does not like to do. There are dangers of sending the individual /students in field which he/she does not like. One the other hand if we want a very bright future of medical sciences we need to implement and admit right students with right aptitude in medical sciences. Now numbers of valid aptitudes tests for medical admission are available and many countries are already using it successfully. It is educational policy makers to decide. Some academicians have started thinking of assessing the psychomotor and affective domain in preadmission tests. Though these are the future issues but the today our problem is well tackled by adding well planned aptitude tests in pre medical admission test.

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2

DETERMINATION OF LESION SEVERITY BY DOBUTAMINE STRESS ECHOCARDIOGRAPHY WHEN COMPARED WITH QUANTITATIVE CORONARY ANGIOGRAPHY: A RETROSPECTIVE COHORT STUDY.

Dr **PanchaniNirav,** Dr **Gupta Ankur ,** Dr **Naxane Seema,** Dr **Tamakuwala Krunal,** Dr **Rawal Jayesh**

Department of Cardiology, Smt S.B.K.S. Medical Institute and Research Centre, Piparia, Dist.Vadodara, Gujarat. INDIA

ABSTRACT

Background:

Exercise stress testing is done commonly for the detection of coronary artery disease (CAD). It is a non-invasive method for CAD detection. In certain patients where exercise testing is not possible, some other form of non-invasive stress testing is required. Out of various techniques which can induce ischemia, traditionally dobutamine stress echocardiography (DSE) has been relied up on. DSE can be done for detection and localization of CAD.

Methods and results:

In this study, a retrospective cohort study **was done** in the patients who underwent both DSE and quantitative coronary angiogram (CAG). The study was carried out on various parameters: a) severity of CAD was correlated with the heart rate at which a positive DSE test is obtained; b) ability of DSE to detect coronary artery stenosis with a minimal lumen diameter <1 mm was evaluated; c) a new model of coronary artery distribution was utilized to determine the ability of dobutamine stress echocardiography (DSE) in detecting stenosis in individual coronary arteries.
A total number of 104 patients were identified who underwent both DSE and CAG. All of these patients were evaluated on the above mentioned parameters. Interpretation of echocardiograms was done using a modified 16-segment model. Incremental infusion of dobutamine was given in all these patients. Two-dimensional echocardiograms were obtained: at rest, during low stress (low dose dobutamine), peak stress (peak dose dobutamine) and after stress (recovery). The data obtained was then analyzed for an overall sensitivity, specificity and accuracy of this technique in detection of CAD (diameter stenosis ≥50%).

Conclusion:

DSE was found to have a high sensitivity and specificity for the detection and localization of CAD when compared with CAG. Dobutamine stress echocardiography is equally sensitive in detecting CAD in all the three major coronary artery distributions, especially by using the modified 16-segment model with areas of coronary artery distribution. Lesions where the minimal lumen diameter is <1 mm are more likely to be correctly identified by DSE. A multivessel CAD is more likely to be present when a DSE becomes positive at a heart rate ≤125 beats/min.

Key words: Dobutamine stress echocardiography, Coronary angiography, Coronary artery disease.

Address for correspondence: Jayesh Rawal, Department of Cardiology, Smt S.B.K.S. Medical Institute and Research Centre, Piparia, Dist.Vadodara, Gujarat. INDIA

INTRODUCTION

Exercise stress testing is done commonly for the detection of coronary artery disease (CAD). It is a non-invasive method for CAD detection. In certain patients where exercise testing is not possible, some other form of non-invasive stress testing is required. Out of various techniques which can induce ischemia, traditionally dobutamine stress echocardiography (DSE) has been relied up on for this. DSE can be done for detection as well as localization of CAD.

Some earlier studies have reported the role of DSE in providing information regarding the localization and severity of CAD in a patient. These studies focused up on the correlation between echocardiographic wall motion and coronary artery anomaly. A few of these studies[1] however managed to demonstrate such a relationship but many other were imprecise in their association regarding the same. Many of the earlier studies have used various pharmacological agents to induce cardiac stress in a patient in order to detect CAD.[2-7]Our study focused precisely to demonstrate the ability of dobutamine to induce the pharmacological cardiac stress in order to find out a correlation between the echo cardiographic wall motion abnormality and the associated coronary artery anomaly. The standard 16-segment model developed by Bourdillon *et al.*[8]for correlating myocardial segment with the coronary artery perfusing those segments was used in our study with slight modifications. These modifications were done in order to accommodate an overlap in coronary artery distribution to apical lateral and apical inferior myocardial segments. Many studies done previously have relied on qualitative assessment of the degree of coronary artery stenosis while comparing DSE with CAG.[2-7] However better accuracy in estimating coronary artery narrowing can be done by quantitative CAG.[8,9] The ability of DSE to accurately detect the significant stenosis in individual coronary arteries has varied widely.[1] Quantitative angiographic techniques can measure the percent diameter stenosis and the minimal lumen diameter of a specific lesion. DSE offers a better advantage over many other forms of standard exercise testing as the amount of cardiac stress can be controlled without much efforts. This helps to avert any side effects or complications that may be associated with exercise testing. Since the degree of cardiac stress can be controlled, DSE may provide a better accuracy regarding physiological significance of a coronary artery lesion.

After keeping all the benefits of DSE, certain aims and objectives were shortlisted for our study :a) to correlate severity of CAD with the heart rate at which a positive DSE test will be obtained; b) to look and evaluate the ability of DSE to detect coronary artery stenosis with a minimal lumen diameter <1 mm; c) to correlate the heart rate at which a positive test result occurs with the severity of coronary artery disease.

MATERIALS AND METHODS

Study design:

In this study, a retrospective cohort study. It consists of all cases that underwent DSE and CAG in Dhiraj General Hospital, Vadodara, Gujarat.Correlation between the echocardiographic wall motion abnormality and CAG findings was carried out. This study consists of data of patients who underwent both DSE and CAG in our cardiology department over one year i.e. December 2013 to November 2015. A total number of 104 such patients were identified and enrolled in our study. Patients were subjected to DSE only where exercise stress testing was not possible. This included the patients who had suffered prior stroke, or had claudication, severe arthritis or other conditions that prevented exercise stress testing. The patients who had undergone a prior coronary artery bypass grafting were excluded from our study group.

A total of 104 patients were selected. Out of these 68 were males and 36 were females. Then mean age of the patients was 56.6 years (range 24 to 76). The study protocol was approved by the institutional review board. An informed, written consent was obtained from all the study patients.

Dobutamine infusion protocol:

Dobutamine was started at 10 mcg/kg/min and increased every 3 minutes to 20, 30 and 40 mcg/kg/min. Infusion was started at a lower dose (5mcg/kg/min) if baseline LV function was abnormal. Images, electrocardiogram (ECG) and blood pressure were recorded at rest, at low dose (5 to 10 mcg/kg/min), at peak dose (30 to 40 mcg/kg/min) and the recovery (5 min. after termination of infusion). The dobutamine infusion was discontinued when any of the following end points were reached: a) a new regional wall motion abnormality or wall thickening noted in two or more contiguous segments; b) ≥2 mm ST segment depression on the ECG; c) >15 mm Hg decrease in systolic blood pressure from the baseline value; d) any significant side effects or arrhythmia; e) maximal dose of 30-40 mcg/kg/min; and f) achievement of 85% of the age predicted maximum heart rate (APMHR).

QuantitativeCoronary Angiography:

Judkins' technique was used to obtain single-plane coronary angiograms involving a standard cineangiographic system. This system was interfaced to a digital radiographic computer system (Xcelera r3.1L1).An investigator was assigned to report quantitative angiographic measurements of percent diameter stenosis and minimal lumen diameter. This investigator howsoever had no knowledge of the clinical history of the patient, ECG and DSE findings. Single cine images that best demonstrated the most severe narrowing were chosen for quantification. An automatic edge detection method was used for quantification of the luminal diameter and stenosis . The catheter shaft of known diameter was used as a reference to obtain a calibration factor. A centerline was automatically derived by positioning a circular region of interest over the catheter shaft. Calibration was achieved by entering the known catheter diameter resulting in a calibration factor (mm/pixel) for quantitative analysis. In a similar fashion, a circular region of interest was positioned over each stenotic segment. Quantification of the stenosis severity was then done by the designated operator. DSE wall motion abnormalities were then correlated with the location of stenosis in the individual coronary arteries. The stenotic location was determined by the geometric diameter percent stenosis and minimal lumen diameter. In a case if there was stenosis in the branch vessel, it was assigned to the main contributing vessel. Single vessel disease (SVD) was designated in the presence of ≥50% diameter stenosis in only one vessel. Multi-vessel disease (MVD) was designated in the presence of ≥50% diameter stenosis in more than one epicardial coronary artery. There was no separation done on the basis of left or right dominant circulation.

Dobutamine Stress Echocardiography:

Two-dimensional (2-D) echocardiograms (ECHO) were obtained with the GE S6 echocardiography machine using a 3 MHz transducer. Two-dimensional ECHO was done after placing the patient in left lateral decubitus position. Four views were taken in each case comprising of parasternal long-axis, parasternal short-axis at the papillary muscle level, apical four-chamber and apical two-chamber. All the four views were taken each during the stress ECHO at rest, at low dose dobutamine (5-10 mcg/kg/min), peak dose dobutamine (30-40 mcg/kg/min) and at recovery (5 min. after termination of infusion). Dobutamine dose was increased every 3 mins. All the ECHO cine loop images that were obtained were arranged in a quad screen display. This was done so that all images obtained in each stage could be directly compared during playback in a continuous loop format.

Echocardiographic analysis:

All the images were interpreted by two investigators who had no idea about the patients' clinical history, ECG or coronary angiograms. In case of disagreement between the two investigators, all the images were reviewed by a third investigator in blinded manner.

If there was a progressive increase in myocardial thickening or wall motion or both, it was designated as a normal response. In case there was a reduction in systolic thickening or wall motion at any stage in the protocol as compared to the previous stage, it was designated as an abnormal response. A lack of increase in the wall motion or systolic thickening, or both, with incremental dobutamine infusion was considered abnormal.

Left ventricle segmental model:

A modified scheme from that proposed by the Bourdillon*et al.*[8]was used (Figure 1.) to locate and correlate the segmental wall motion abnormalities with the coronary artery distribution. The apical lateral and apicalinferior segments were designated as overlap areas. The apicallateral segment was taken to be a part of the LAD coronary artery distribution in case there were associated additional septal or anterior wall motion abnormalities. The same segment was taken to be a part of theLCx artery distribution in case there were associated posterior or posterolateral wall motion abnormalities.The apical inferior segment was taken as part of the RCA distribution in case there were additionalinferior wall motion abnormalities. It was taken as a part of the LAD region in case there were additional anterior or anteroseptalwall motion abnormalities.Segmental wall motion was graded as previously reported.[1]

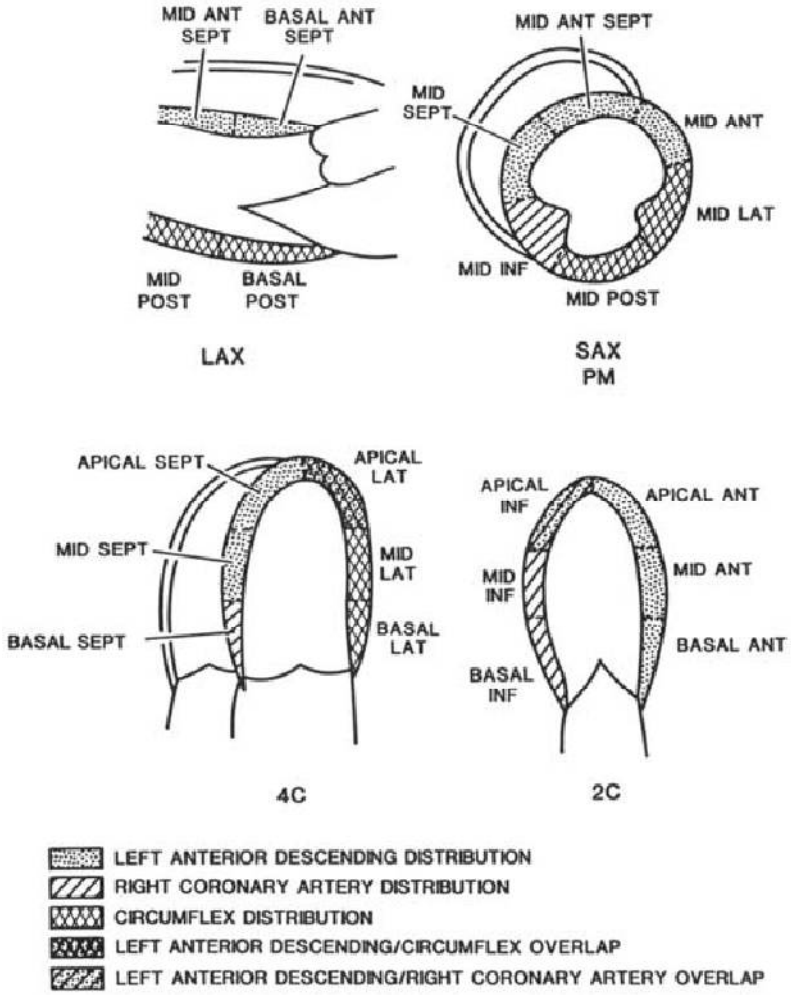

Figure 1. Diagram of the modified 16-segment model with areas of coronary artery distribution shown as areas of stippling or cross hatching. The overlap areas are represented as a combination of the graphics in the overlap territory. ANT = anterior; 4C = four chamber; INF = inferior; LAT = lateral; LAX = long axis; POST = posterior; SAX PM = short axis at the papillary muscle level; SEPT =

Statistical Analyses:

Continuous variables were expressed as mean value ± SD ormedian with interquartile range.Data was analyzed using statistical variant analysis or SPSS after applying tests like chi square test. A *p* value of <0.05 was considered significant for the purpose of this study.

RESULTS

Overall findings:

Out of the total 104 patients 88 had abnormal coronary artery findings as defined by ≥50% luminal narrowing. DSE yielded abnormal results in 85 of the 88 patients. This led to an overall sensitivity of 96%. The test correctly identified normal status (stenosis of <50%) in 13 patients. This gave an overall specificity of 81% (13 of 16).

Individual coronary artery stenosis: (Table 1.)

A total of 138 coronary artery lesions were identified with a stenosis of ≥50% in diameter. Of 51 stenosis in the LAD coronary artery, 40 (78%) were identified on the basis of a wall motion abnormality in a region supplied by that vessel. Of the eleven stenosis that could not be detected, eight had <70% lumen narrowing and a minimal lumen diameter >1 mm and two lesions were in diagonal vessels.

A total of 34 lesions were identified in the LCx artery distribution. Out of these 34 lesions, 26 (76%) were detected by DSE. Of the eight lesions that were not attributed to LCx distribution, the DSE identified five in the right coronary artery distribution.

A total of 53 RCA lesions were identified. DSE was able to detect 42 (79%) out of the total 53 RCA lesions. Of the 11 lesions that were not detected, 9 were interpreted as an LCx coronary artery lesion or were supplied by collateral flow.

Table 1. Individual coronary artery stenosis

Coronary artery	Total no. of lesions	No. detected*
LAD	51	40 (79%)
LCx	34	26 (76%)
RCA	53	42 (79%)

*There were no significant differences (p > 0 .051) among the percent of lesions detected in the three coronary arteries. LAD = left anterior descending coronary artery. LCx = left circumflex coronary artery. RCA = right coronary artery.

Patients with minimal lumen diameter <1 mm:

Fifty-six patients had a stenosis with a minimal lumen diameter <1 mm. DSE yield was abnormal in 50 (89%) of these 56 patients. Of the six stenosis missed, one was in a diagonal branch of the LAD coronary artery, two were in patients with MVD whose study was stopped before the target heart rate was reached, two lesions were in LCx coronary artery and one was in a heavily collateralized LAD coronary artery . There was no significant difference in the percent of positive study results among the three coronary artery distributions.

Effect of Heart Rate on Accuracy:

1. Normal wall motion at rest: The results became positive in 50% of the patients at a heart rate ≤125 beats/min. who had normal wall motion at rest. In the other half, the test results became positive at a

heart rate of >125 beats/min. The patients who's DSE test was positive at a heart rate of ≤125 beats/min. had a likelihood of harboring MVD ($p < 0.05$).

2. Abnormal wall motion at rest: In majority of the patients having abnormal wall motion at rest the test became positive at a heart rate ≤125 beats/min. Most of these patients with positive results at a heart rate ≤125 beats/min. had MVD and rest few had significant SVD.
   Heart rate was not found to be statistically significant discriminator for the presence of MVD in patients with wall motion abnormalities at rest.

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DISCUSSION

A clinically useful non-invasive, non-exercise test for evaluating coronary artery disease in a patient if available is a very good tool. Dobutamine stress echocardiography been proposed as a very useful tool for this purpose.[3-7] It serves the purpose well in evaluating CAD in a patient with a very good sensitivity, specificity and accuracy. The other benefits of DSE are that it carries it carries minimum risks and due to the short duration of action, its effects can be easily monitored and controlled. DSE is also easy to perform and can be done with ease in patients where exercise testing is not possible. Also DSE carries a better yield in terms of results as compared to exercise testing. In this study we have reported our clinical experience, effects, evaluation of DSE in terms of detecting CAD and preoperative risk assessment. The results of our study were good in highlighting and consolidating the role of DSE for the same purpose. The overall sensitivity of the test was 96% and specificity of 81%. These findings are very similar to those previously which have been previously reported.[7]

In our study there was no statistical significant difference in the DSE test's ability to detect to detect coronary artery lesions in three vascular territories. According to some previous studies, the LCx artery territory lesions are less accurately detected than the lesions in LAD and RCA artery territories.[1,11`] The reason for this difficulty is perhaps the overlap in perfusion areas between the RCA and LCx arteries. This showed earlier that DSE testing had more sensitivity, specificity and accuracy for the LAD and RCA artery lesions than the LCx artery lesions. However there was improved accuracy for the LCx artery lesion in our study. This improvement in accuracy can be attributed to the use of an overlap method for determining the proper coronary distribution of wall motion abnormalities. Our method takes into consideration the overlap in perfusion that is possible between the LCx and RCA coronary arteries as well as the overlap between the LAD and RCA coronary arteries.

There is a well established notion that an "early positive" stress test result identifies a patient with more severe CAD. This notion was very well supported by our observations. Multi-vessel disease was more frequently found in patients was seen who had normal wall motion at rest and a positive DSE test result at a heart rate ≤125 beats/min. Whereas, in patients with normal wall motion at rest, a single vessel disease was seen more common if the DSE test result was positive at a heart rate >125 beats/min.

However, in our study heart rate did not have much difference among the patients with wall motion abnormalities at rest.

CONCLUSIONS

Dobutamine stress echocardiography is equally sensitive in detecting CAD in all the three major coronary artery distributions, especially by using the modified 16-segment model with areas of coronary artery distribution. Lesions where the minimal lumen diameter is <I mm are more likely to be correctly identified by DSE. A multivessel CAD is more likely to be present when a DSE becomes positive at a heart rate ≤125 beats/min.

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3

A STUDY OF REASONS OF NON-COMPLIANCE TO PSYCHIATRIC TREATMENT

1) Dr LakshmannDutt (Ex Honorary psychiatrist, Department of Psychiatry, V.S Hospital)

2) Dr KalravMistry Consultant psychiatrist, ex registrar, V.S hospital)

3) Dr Zankhanjetfire M .Resident doctor, V.S hospital) Department of Psychiatry, V.S Hospital Elisbridge Ahmedabad pin 380006

ABSTRACT:

Background: This study was carried out with an objective to find out the frequency of different reasons of non-compliance to treatment in a sample of outdoorpsychiatric patients.

Methods: This study was conducted at the out patients services of psychiatry clinic. A non-probability sample of 239 follow up patients between twenty to eighty years of age was taken for data collection over a period of three months (from Dec 2014, to Mar, 2015). Data from a non-probability sample of 176 follow up patients with a definite psychiatric illness was collected. A questionnaire designed for this purpose was administered by a consultant psychiatrist to the patients. The data was categorized into different causes of discontinuation of treatment accordingly.

Results: The commonest reasons for non-compliance were unawareness of the benefits of treatment (58.15%), no affordability of drugs (32.63%), physical side effects

(22.17%), no awareness given by the doctor (01.25%) and unfriendly attitude of doctors (0.83%). The commonest illnesses leading to non-compliance were major depressive disorder (33.05%), schizophrenia (15.89%) and bipolar affective disorder (17.99%).

Conclusion: Non-compliance is quite common in our country like any other society. Medical practitioners need to be aware of it and address this problem because compliance is directly related to the prognosis of the illness. It is recommended that all efforts should be exerted to improve the compliance of psychiatric patients by eliminating the factors leading to non-compliance.

KEYWORDS: Non-compliance, Psychiatric illnesses, Treatment.

INTRODUCTION

About 20-25% of all general practice attendees suffer from significant psychiatric illnesses. Non-compliance to treatment always is the biggest challenges to GPs worldwide. Apart from treatment failures, noncompliance to treatment is one of the main causes of relapse and r e-hospitalisation worldwide. Non-attenders to appointments and patients who fail to achieve improvement in symptomatology must be evaluated. Non-attenders who rarely comply with any treatment regimen need to be monitored for attendance (i.e., how many appointments they miss). Certainly, at each visit the clinician needs to ask the patient whether he or she is taking the medication according to the clinician's medical advice. The clinician should acknowledge to the patient that many patients have difficulty taking their medication, explaining that there are many reasons for this. The clinician should then ask if he or she has such problems. In this manner, a patient may feel less guilty with respect to admitting non-adherence.

Several investigators are report that lack of insight into the illness and poor understanding of the chronic nature of psychiatric conditions contributed realty to non-compliance.

It is important to educate patients and their families about the need for medication and the nature of the psychiatric diagnosis. Clinicians should explain to the patient that in many cases the problem is a chemical imbalance. Although the causes of psychiatric illnesses are still being studied and the exact cause is not yet known, the aberrance in brain chemistry can be treated with psychotropic medication. Clinicians should explain to the patient that psychiatric illness should be thought of as a medical problem analogous to hypertension (where medication is used to control blood pressure) or diabetes (where medication is used to control blood sugar levels).

This study was conducted in a rural setting with an appreciable number of non-compliant patients and where mental health services rendered by general practitioners. The focus of the study was on the subjective aspects of the patients' reasoning and perspective of their care giving relatives.

I 0Non -compliance or non- adherence to treatment is the degree to which a patient does not carry out the clinical recommendations of a treating physician.[1] In other words it is the failure of the patient to follow the prescribed treatment regimen.[2] Non-compliance is a significant problem in all patient populations, from children[3] to the elderly.[4,5] It applies to nearly all chronic disease states [6] and settings, and tends to worsen the longer a patient continues on drug therapy.[7] Non-compliance is now a day considered to be the major problem in the health services of both developed and developing countries. Most patients probably comply with treatment only between 33% and 94%, with a median of approximately 50% for long-term therapy.Another set of patients will never start or will stop therapy completely within the first year, and only a minority will continue taking drugs as prescribed.[7]

Compliance is important because it is directly related to the prognosis of the illness. The results of non-compliance have been studied extensively, and are significant especially, lack of disease control and hospital admissions or readmissions.[8] Reasons for non-compliance are multi factorial in origin and to find out the different factors leading to non-compliance we performed a cross sectional study.

MATERIAL AND METHODS

This study was conducted at the out patients services of psychiatry clinic. A non-probability sample of 239 follow up patients between twenty to eighty years of age was taken for data collection over a period of three months (from Dec 2014, to Mar, 2015). There was no restriction of sex, marital status, educational level, socioeconomic status and place of residence. An informed consent was taken from patients. Basic demographic information along with psychiatric diagnosis, type of treatment and the different reasons for non-compliance were recorded. An interviewer assisted questionnaire was designed for this purpose which was administered by a senior psychiatrist to the patients.

We divided the different reasons for non-compliance into three main categories.

A) **Non-compliance due to discomfort with the treatment**: This includes cost & availability of drugs, duration of treatment, response to treatment, stigma for psychiatric treatments and treatment regimen.

B) **Non-compliance as a result of poor comprehension:** This includes the realisation of advantages/disadvantages of treatment.

C) **Non-compliance due to poor communication between the doctor & patient:** This includes awareness given by doctor about the treatment, doctor's attitude, level of satisfaction with the competence of doctor and accessibility of doctor.

RESULTS

In the category A, the commonest reasons for non-compliance were non affordability of drugs (32.63%) and physical side effects (22.17%), shown in table-1. In the category B the commonest reason for non-compliance was unawareness of the benefits of treatment (58.15%) while in the category C the commonest reasons for non-compliance were no information given by the doctor (01.25%) and unfriendly/hostile attitude of doctor (0.83%), shown in tables 2 and 3 respectively. The results also show that people suffering from major depressive disorder (33.05%) are most likely to

non-comply to treatment given, followed by those suffering from schizophrenia (15.89%) and finally those suffering from bipolar affective disorder (17.99%), shown in table 4.

Table-1: Non-compliance due to discomfort with the treatment (n=239)

		Cases (%)
Cost (Affordability)	No affordable.	78 (32.63)
Availability of treatment	Not available.	15 (6.27)
Side effects	Physical	53 (22.17)

***Table-2: Non-compliance as a result of poor Comprehension**

		Cases (%)
Realisation of advantages/ disadvantages of treatment.	Partial realisation	34 (14.22)
	No realisation at all	139 (58.15)

Table-3: Non-compliance due to poor communication between the doctor & patient (n=239)

		Cases (%)
Awareness given by doctor.	Partial awareness	48(20.08)
	No awareness at all.	3 (1.25)
Doctor's attitude.	Unfriendly/Rejecting.	2 (0.83)
	Hostile	4 (1.67)
Level of satisfaction with the competence of, doctor.	Partially satisfied.	4 (1.67)
	Not satisfied at all.	4 (1.67)
Accessibility of doctor.	Accessible with difficulty.	6 (2.51)

Table-4: Non-compliance & psychiatric illness (n=239)

Type of disorder	Cases (%)
Dementia.	03 (1.25)
Acute psychotic episode.	02 (0.83)
Schizophrenia.	38 (15.89)
Schizoaffective disorder.	07 (2.92)
Major depressive disorder.	79(33.05)
Bipolar affective disorder.	43 (17.99)
Panic disorder & agoraphobia.	07 (2.92)
Obsessive-compulsive disorder.	06 (2.51)
Generalised anxiety disorder.	17 (7.11)
Somatisation disorder.	08 (3.34)
Dissociative disorder.	03 (1.25)
Cannabis abuse	06 (2.51)
Benzodiazepines abuse	08 (3.34)
Personality disorders.	12 (5.02)

DISCUSSION

Medication noncompliance can be intentional or unintentional. Some underlying factors for unintentional noncompliance include complex medication regimes, an inability to pay for medications, forgetfulness, and/or failure to understand instructions due to auditory, visual, psychological, or intellectual impairments.

Non-compliance is a serious problem, and has many serious effects on the overall treatment and prognosis of the illness. Medication non-compliance, the failure to take drugs on time in the dosages prescribed, is as dangerous and costly as many illnesses.

Non-compliance may signal that patient and physician goals and priorities differ regarding the treatment and its schedule.[9]It is a major problem with almost all psychotropic drugs. Patients who are non-compliant are more severely ill at the point of readmission to hospital, have more frequent readmission; are more likely to be admitted compulsorily, and have longer inpatient stays.[10]

Reasons for non-compliance that came into view in this study include the expense and availability of treatment, type of illness, type of treatment, side effects and the number of doses or of preparations to be taken daily. (Treatment regimen) Along with these reasons the social and cultural

stigma related to psychiatric illnesses and their treatment and doctor- patient relationship also play a role.

The results of our study show that the cost of the treatment is the commonest reason for non-compliance, not unlikely in our society because most of the people who are suffering from chronic psychiatric illnesses are from lower socio-economic group.

Medications used to treat mental illnesses are known to have an array of potentially unpleasant side effects, ranging from restlessness and pacing to excessive sedation, tremor, dry mouth, constipation, impotence, weight gain, missed menstrual cycles, and many others. Our study shows that the second commonest reason for non- compliance is the side effects of psychotropic drugs.

Non availability of drugs is another problem that leads to non-compliance. Many of the important drugs are not available in rural or in far-flung areas, so many patients stop treatment prematurely.

Considering the realisation of importance of treatment most of the patients stop medications because of illiteracy or lack of insight. This behaviour is further precipitated by the stigma to psychiatric illnesses, treatment from quacks and traditional faith healers and improper education of patients by the doctors. The study shows that some doctors (1.67 %) are hostile or non-cooperative or they are not easily accessible, as they should be to the patients leading to precipitation of non-compliance.

As regards the different psychiatric illnesses, we see that people suffering from major depressive disorders (33.05%) are the commonest to noncomplying, followed by those suffering from schizophrenia (15.89%) and those suffering from bipolar disorder (17.99%). Literature review shows the prevalence of different disorders to vary from our society. A study by Elixhauseret al[11] shows that 74 % of outpatients with schizophrenia stop taking neuroleptics or antipsychotics within two years of leaving a hospitaland 20 to 57 % patients with bipolar affective disorder are non-compliant.[11]

The possible reasons for this could be that perhaps our sample size was too small to represent the whole population. Probably due to joint family system most of our patients are cared for by family members who take charge of the administration of medicines to the patients.

CONCLUSION

We believe that the management of patients with psychiatric illnesses can be improved by addressing the reasons ofnon-compliance as highlighted in this study. However, more qualitative research needs to be undertaken in various contexts similar to and different from our study. It will provide an understanding about the sociodemographic variables that affect medication compliance.

Non-compliance is common, prevalent and important issue in the treatment of psychiatric illnesses. It is recommended that further research is needed in this field to know more about it and to understand it better. Furthermore to prevent psychiatric patients from non-complying to treatment doctors should be aware of the drugs cost & education of patient regarding the benefits of treatment and that doctor's attitude is part of the therapeutics.

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4

POST-OPERATIVE ASTIGMATISM AFTER SICS AND PHACOEMULSIFICATION.

Dr.Vijay Damor, Dr.Anupama Mahant, Department of ophthalmology ,AMC MET Medical college. **Ahmedabad pin 380008**

Abstract :

Background: Astigmatism plays a major role in post-operative compliance after cataract extraction surgery. Recent advances in technology and intra ocular lens implantation through small incision allow early rehabilitation of patient and limits excessive post-operative astigmatism.

Material and methods: patients undergoing cataract extraction were considered for the study. 80 patients were taken for the study, 40 in each group of SICS and phacoemulsification. In all cases follow up visits thorough ocular examination was done especially looking for corrected visual acuity & correction needed for that. Keratometry was done in each follow up visits. At the end of three months surgically induced astigmatism (SIA) was calculated by deducting pre-operative astigmatism from the post-operative astigmatism.

Results: The less average SIA was noted in phacoemulsification group than in small incision cataract surgey. For SIA operative factors like incision size, shape, type, length, and location play a major role.

Keywords: Small incision cataract surgery, phaco-emulsification. surgically induced astigmatism.

Introduction:

Astigmatism plays a major role in post-operative compliance after cataractextraction surgery. Various methods of cataract extraction are used and newmethods are continuously invented to minimize the post-operative astigmatism.The important factors in postoperative astigmatism are incisionlength, type, shape and location. Other factors which contribute are cauterization, wound healing factor.Recent advances in technology and intra ocular lens implantation throughsmall incision allow early rehabilitation of patient and limits excessive post- operativeastigmatism.Suture-less cataract extraction using tunnel incision is used in small incisioncataract surgery (SICS) with manual removal of cataract and phaco-emulsification technique to remove nucleus. Even foldable lenses are advised tominimize the size of incision and thereby minimize the post-operative astigmatism.For measuring corneal astigmatism we clinically use keratometer. Post operatively healing of incision takes about 1.1/2 months. After this, surgically induced astigmatism can be measured with vector method. With help of pre—operative vector in diaptor with its axis, we can calculate effective inducedastigmatism with its axis.

Aims:

Aims of the present study are (1) To Compare of post—operative astigmatism after various methods of cataract surgery:(a) Small Incision Cataract Surgery(b) Phacoemulsification. (2)To study the effect

of various factors like incision length, shape, situation inrelation to limbus, and other factors affecting Surgically InducedAstigmatism (SIA) following Cataract surgery.

ASTIGMATISM:

Astigmatism is a type of refractive error in which no point, focus is formed, leading to unequal refraction of incident light by the dioptric system of eye in different meridians. Consequently rays of light entering the eye cannot converge to a single point focus but form focal line. Normally the retracting power of normal emmetropic eye is about 60 D. The cornea and lens play a major role. Astigmatism can be divided in two: (1) REGULAR ASTIGMATISM :The regular astigmatism can be further subdivided in with the rule, against the rule, oblique and bi-oblique astigmatism. ln with the rule astigmatism, vertical meridian is more curved than the horizontal meridian. ln against the rule astigmatism, horizontal meridian is more curved than the vertical meridian. If the principle meridians are not vertical and horizontal but they cross each other at right angle, it is called oblique astigmatism. When the axes are not at right angle but they cross obliquely, the condition is called bi-oblique astigmatism. (2) IRREGULAR ASTIGMATISM: Refraction in different meridian is quite irregular it is found in corneal pathology and is due to different curvature, or different refractive index.

KERATOMETRY:

It is the measurement of the radius of curvature of anterior surface of cornea.This is done with help of an instrument called Keratometer. The keratometer used for the present study was Baush and Lomb type of keratometer. Principle: The Keratometer is an instrument that measures the radius of curvature of anterior surface of cornea by utilizing the first Purkinje image. If target of a known size is projected onto the cornea and its image is measured utilizing an image doubling technique man observing microscope. By assuming a standard index of refraction of the cornea and a known size of projected target the size of reflected image can be shown to vary according to the radius of curvature of anterior surface of the cornea. The instrument can be calibrated to read the radius of curvature directly.

FACTORS AFFECTING THE POST OPERATIVE ASTIGMATISM:

Pre Existing Astigmatism -The projection of preoperative astigmatism can be calculated either by subtraction method or by vector method. In subtraction method preoperative astigmatism is subtracted from final outcome of astigmatism to derive surgically induced astigmatism (SIA) and in vector analysis method, geometric addition of preoperative and postoperative astigmatism is done to derive induced astigmatism.

Operative Factors:

Incision:- **Shape :** Straight, frown, smile **Type :** Corneal, limbal, sclera **Length :** Cord length of the incision **Location:** Superior, Temporal, Nasal, Supro-temporal.

INCISION

Effect of Wound Architecture on Astigmatism :

A. Site 1 inversely proportional to distance from centre of cornea.
B. Shape : Straight, frown, curvilinear.
C. Size : Directly proportional to length of incision.
D. Cautery: increased use, induces irregular astigmatism.
E. Location I Temporal induced less astigmatism.
F. Post operative excessive use of topical / systemic steroids lead to delayed

MATERIALS AND METHODS: Patients undergoing cataract extraction were considered for the study with no other ocular disease was found, selected patients underwent different type of cataract extraction i.e. SICS and PHACOEMULSIFICATION 80 such patients were taken for the study, 40 in each group. Detailed history was taken and ocular examination was done with torch and slit lamp Posterior segment examination was done with ophthalmoscope. Routine systemic examinations and laboratory investigations were carried out.

OTHER EXAMINATIONS

CORRECTION	RE				LE			
	VN WITH GLASS	SPH	CYL	AXIS	Vn WITH GLASS	SPH	CYL	AXIS
REFRACTION (Diaptors)	HORIZ	AXIS	VERT	AXIS	HORIZ	AXIS	VERT	AXIS
KERATOMETRY (Diaptors)	HORIZ	AXIS	VERT	AXIS	HORIZ	AXIS	VERT	AXIS
AXIAL LENGTH								
IOL BIOMETRY (SRK-2)								

POST-OP-DETAILS

	KERATOMETRY				VISION			CORRECTION	
	HORIZ	AXIS	VERT	AXIS	WITHOUT GLASS	WITH GLASSS	SPH	CYL	AXIS
1ST DAY									
1 WEEK									
2 WEEKS									
1 MONTH									
3 MONTHS									

OBSERVATIONS AND DISCUSSION:

We have done study of post-operative astigmatism following Small incision cataract surgery (SICS) & phaco emulsification (PE) surgery. In all these types of surgery 40 cases were taken in each group. During the study following observations were made :

1. Eye operated distribution

EYE	GROUP-1	GROUP-2	TOTAL
RE	24	18	42
LE	16	22	38

2. Uncorrected vision distribution

UNCORRECTED VISION	GROUP-1	GROUP-2
<CF 1 M	16	0

CF 1 M- CF 4 M	14	8
CF 4 M- CF 6 M	6	20
6/60	4	10
6/36	0	2
6/24	0	0
6/18	0	0
6/12	0	0

3. Pre-op corrected visual acuity distribution:

CORRECTED VISION	GROUP-1	GROUP-2
<CF 1 M	14	0
CF 1 M – CF 3 M	0	0
CF 4 M – CF 6 M	12	2
6/60	6	18
6/36	4	14
6/24	4	4
6/18	0	2

4 .Cataract grading distribution:

CATARACT GRADE	GROUP-1	GROUP-2
I	0	0
II	2	14
III	24	26
IV	14	0
V	0	0

5. Incision shape distribution:

SHAPE	GROUP-1	GROUP-2	TOTAL
FROWN	6	0	6
STRAIGHT	34	40	74

6. Incision size distribution:

SIZE (MM)	GROUP-1	GROUP-2	TOTAL
9	0	0	0
8	4	0	4
7	14	0	14
6	22	12	34
5	0	10	10
4	0	0	0
3	0	18	18

7. Site of radial in relation to limbus.

SITE OF RADIAL (MM)	GROUP-1	GROUP-2	TOTAL
-1.5	-	-	-
-1.0	-	-	-
-0.5	-	10	10
0.00	-	14	14
+0.5	-	2	2
+1.0	-	6	6
+2.0	26	4	30
+3.0	14	4	18

Post-operative observations:

In all cases follow up visits thorough ocular examination was done especially looking for corrected visual acuity & correction needed for that. Keratometry was done in each follow up visits by using boush & lomb type of keratometer. At the end of three months surgically induced astigmatism (SIA) was calculated by deducting pre-operative astigmatism from the post-operative astigmatism.

1. Site of radial induced astigmatism.

SITE OF RADIAL (mm)	NO.OF CASES	MEAN INDUCED ASTIGMATISM
-1.5	-	-
-1.0	-	-
-0.5	10	0.67 D
0.00	14	0.75 D
+0.5	2	0.38 D
+1.0	6	0.55 D
+2.0	30	0.71 D
+3.0	18	0.54 D

2. Incision cord length and induced astigmatism

WIDTH (mm)	No. of cases	Mean induced astigmatism
3.2	28	0.345 D
5.5	12	0.530 D
7.0	38	1.126 D
8-9	2	2.255 D

3. Incision shape induced astigmatism.

SHAPE	NO. OF. CASES	MEAN INDUCED ASTIGMATISM
FROWN	6	0.863 D
STRAIGHT	74	0.576 D

4. Surgically induced astigmatism.

SIA D	GROUP-1 NO. OF CASES			GROUP-2 NO. OF CASES.		
	WTR	ATR	TOTAL	WTR	ATR	TOTAL
4-5 D	0	0	0	0	0	0
3-4 D	0	0	0	0	0	0
2-3 D	0	2	2	0	0	0
1-2 D	4	0	4	0	0	0
0-1 D	22	12	34	22	18	40

5. Surgically induced astigmatism (SIA).

GROUP	WTR			ATR			TOTAL	
	NO.OF CASES	AVERAGE	SD	NO. OF CASES	AVERAGE	SD	AVERAGE	SD
I	26	0.60	0.28	14	1.03	0.68	0.75	0.50
II	22	0.38	0.26	18	0.52	0.25	0.44	0.26

(P<0.01)

In comparing the over- all surgically induced astigmatism in these two groups, it is seen that in group 1 (SICS) average SIA was 0.75 D (0.50 SD), while in group 2 (PE), average SIA was 0.44

D (0.26 SD). On statistical analysis it is derived that the difference of SIA, in group 1 and group 2 is significant (P<0.1).

Conclusions:

- The study included total 80 cases out of which 40 cases (group 1) were operated by SICS, 40 cases (group 2) were operated by phaco-emulsification surgery. Surgically induced astigmatism (SIA) after 3 months of surgery was compared in two groups.
- Majority of cases was 'with the rule' astigmatism, (WTR).
- SIA 1D-2D was noted in 4 cases (10%) in group 1, while in group 2 SIA was noted <1D in all cases.
- More cord length was associated with more astigmatism. There is definitely more astigmatism in patients with ≥7 mm incision, (the average SIA was >1.0D) than in patients with < 6 mm incision (the average SIA was <0.6D) at the end of three months. As incision size is reduced, SIA is reduced.
- There is more SIA in limbal section (average SIA having 0.75D) than scleral tunnel section (0.5 mm to 3 mm away from the limbus average SIA was ranging from 0.38D to 0.71D). as the site of incision moves away from the cornea, SIA is reduced. So, patients with scleral tunnel incision had very less amount of SIA.
- SIA was less with frown and straight incision (average SIA 0.6D).

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5

Our Experience in Supraclavicular Brachial Plexus Block by Ultrasonography compared with Conventional Method in Upper Limb Surgeries

Dr. Jagruti Satasiya1,Dr. Kalashree Ravalji2, Dr. Charu J. Pandya3

1. Assistant Profesor, Department of Anaesthesiology, AMC-MET Medical College, Ahmedabad, Gujarat, India,
2.Tutor cum SR, Department of Anaesthesiology, AMC-MET Medical College, Ahmedabad, Gujarat, India.
3. Professor and HOD of Dept. of Anaesthesiology, , AMC-MET Medical College, Ahmedabad, Gujarat, India.

Absract

Introduction: Ultrasound allows direct visualization of peripheral nerves,the block needle and local anesthetic disribution. The conventional technique of supraclavicular brachial plexus block being a blind technique may be associated with higher failure rates and injury to nerves and vascular structures,intravascular injection of local anesthetic agent, and injury to dome of pleura and pneumothorax. Hence Ultrasound (USG) is the method offering safe block of superior quality by optimal needle positioning.

Method: This study was conducted among 60 patients posted for elective upper limb surgery of ASA I and II. In one group (n=30) ultrasonography(USG) guided technique was used and in second group (n=30) elecitation of paresthesia technique was used. Various parameters including procedure time, onset time for sensory block, duration of
sensory block, onset time for motor block, duration of motor block, time to achieve complete block and any complications etc were observed.

Results: Overall success rate was higher in USG guided group as compared to conventional method group, which was statistically significant ($p < 0.05$). Time to perform the block was significantly shorter in USG guided group ($p < 0.05$).
Onset time for sensory block, onset time for motor block & time to achieve a complete block was also shorter in USG guided group (p value < 0.05). Duration of sensory & motor block was significantly prolonged in USG guided group ($p < 0.05$)

Conclusion: Ultrasonography guided supraclavicular brachial plexus block is quick to perform, offers improved safety & accuracy in identifying the position of the nerves to be blocked with higher success rates.

Key Words: Brachial Plexus Block(supraclavicular approach), Ultrasonography, elicitation of paresthesia.

Introduction:

Successful peripheral nerve and plexus blockade can provide an excellent anesthetic outcome long lasting pain relief, a low incidence of nausea & vomiting and expedited hospital discharge are some of the clinical advantages for out patients. Among the various approaches of brachial plexus block, supraclavicular approach is considered easiest and effective and safest. It is carried out at the level of trunks of brachial plexus. The first supraclavicular brachial plexus block was performed in 1912.(1)The conventional paresthesia technique being a blind technique may be associated with higher failure rate and injury to nerves and surrounding structures.

Ultrasound (USG) visualization of anatomical structure is only method offering safe blocks of superior quality by optimal needle positioning. USG allows direct visualization of peripheral nerves, the block needle, and local anesthetic distribution. The use of ultrasound for regional anaesthesia was first reported by La Grange et al in 1978(2), who performed superaclavicular brachial plexus blocks with a Doppler ultrasound blood flow detector.

Hence, a study is planned for comparison of brachial plexus block by supraclavicular approach using conventional(elicitation of paresthesia) and USG based technique.

Objectives

The main objectives of this study were to compare the effects of supraclavicular brachial plexus block using conventional blind technique and USG technique in terms of:

1. Time taken for the procedure
2. Onset and duration of sensory blockade
3. Onset and duration of motor blockade
4. Success rate
5. Incidence of complication.

MATERIAL AND METHODS

Source of Data

Sixty patients aged between 18 and 60 years and ASA Grade I and II admitted to Sheth L.G. General Hospital between December 2014 to June 2015, undergoing upper limb surgery lasting more than 30 min were included in the study.

Method of Collection of Data

The patients were randomly divided into two groups of 30 patients each:
• Group 1: (USG guided) - To receive USG guided supraclavicular brachial plexus block
• Group 2: (Conventional) - To receive conventional supraclavicular brachial plexus block by elicitation of paresthesia.

Inclusion Criteria

1. Patients of either sex, aged between 18 and 60 years
2. Patients with American Society of Anesthesiologists (ASA) Grade I and II physical status
3. Elective upper limb surgeries.

Exclusion Criteria

1. Patients <18 years and >60 years of age
2. Patient refusal
3. Patients with significant coagulopathy or peripheral neuropathy
4. ASA Grade III and IV patients
5. Allergy to local anesthetics.
6. Infection at local site.

The various parameters were noted:
• Time taken for the procedure
• Onset and duration of sensory neural blockade
• Onset and duration of motor blockade
• Success rate
• Incidence of complications.
Grading of sensory blockade:
(by pin prick method)

• 0 no pain
• + mild pain
• ++ moderate pain
• +++ severe pain.

Grading of motor blockade:

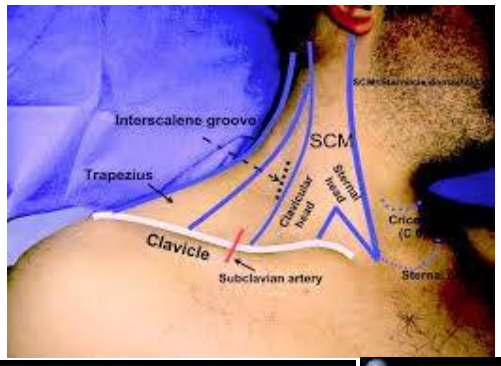
• 0 no contraction
• 1 Flicker of contraction
• 2 Active movement with gravity eliminated
• 3 Active movement with gravity
• 4 Active movement with gravity and resistance
• 5 Normal power

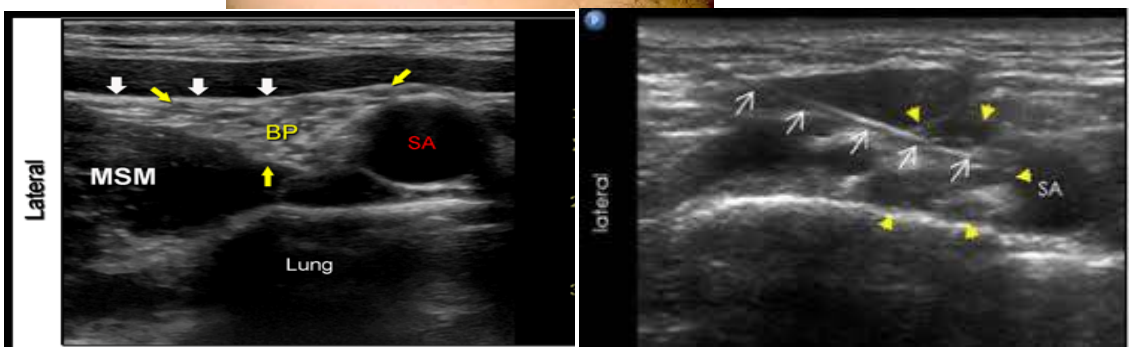
Procedure:

Pre-medication:

Inj. Midazolam 0.05 mg/kg(IV)
Inj. Glycopyrrolate 0.2mg (IV)
Inj. Ondansatron 4mg (IV)

Local anesthetic used:
Inj.Bupivacaine 0.5% 10ml
Inj. Lignocaine with adrenaline 1.5% 20 ml.





Data were collected every 3 min for first 15 min. And every 30 min after surgery at least for 8 h post-operatively.

All patients were observed intraoperatively as well as postoperatively for the complications like vascular puncture, pneumothorax, nerve injury & LA systemic toxicity. Intraoperatively pulse rate, SpO2 and NIBP was recorded at every 15 min interval till the end of surgery. All patients were followed up in PACU until complete recovery of sensory and motor function of the operated limb. Chest X-Ray was done post operatively in all the patients.

Suitable statistical tests were applied to compare data and p-Value < 0.05 was considered statistically significant.

OBSERVATION AND RESULTS

A prospective, randomized, comparative study was conducted in the Department of Anesthesiology, Sheth L. G. General Hospital,Ahmedabad on 60 patients aged between 18 and 60 years posted for upper limb surgeries. There were no clinical or statistically significant differences in the demographic profile of patients in either group.

Age and Weight:

The average age was 35 ± 10years in Group 1 (USG), and 34 ± 9 years in Group 2. Youngest patient in our study group was 18 years, and oldest was 60 years. The average weights of the patients were 60.50 ± 8.9 kg in Group 1 and 63 ± 9 kg in Group 2.

		Group 1	Group 2	P value
Age (years)	Mean±SD	35±10	34±9	0.242
Weight (Kg)	Mean±SD	60.50±8.9	63±9	0.276

Time Taken for the Procedure

The mean time taken for the procedure to administer a block by eliciting paresthesia (Group 2) was 10 min, whereas using an USG (Group 1) the time required for the same was 5.3 min. This was clinically and statistically significant.

		Group 1	Group 2	P Value
Time taken for Procedure(min.)	Mean	5.3	10	<0.0001
	SD	1	1.3	

Onset of Sensory Blockade

The mean time of onset of sensory blockade in Group 1(USG) was 5 ± 2 min and 6 ± 3 min in Group 2.

Onset of sensory Blockade(min)		Group 1	Group 2	P value
	Mean	5	6	0.321
	SD	2	3	

Onset of Motor Blockade

The onset of motor block was within 7 ± 3 min in Group 1 (US) and 10 ± 5 min in group 2. This difference is statistically significant.

Onset of motor Blockade(min)		Group 1	Group 2	P value
	Mean	7	10	0.03
	SD	3	5	

Duration of Sensory Blockade

In Group 1 (USG) the mean duration of sensory blockade was 270±30 min and in Group 2 240±30 min which was longer in group 1.

Duration of Sensory		Group 1	Group 2	P value
	Mean	270	240	0.03

blockade(min)	SD	30	30	

Duration of Motor Blockade

The mean duration of motor blockade in group 1 was 250 ± 30 min and in Group 2 the duration of motor blockade was 225±30 min which was shorter in Group 2 when compared to Group 1.

Duration of Motor blockade(min)		Group 1	Group 2	P Value
	Mean	250	225	0.04
	SD	30	30	

Hemodynamic Parameters

There was no clinically and statistically significant difference in pulse rate, systolic and diastolic blood pressures between the two groups during all period of the study.

Overall Effectiveness of the Block

The block was successful in 100% in Group 1 and 96.70% of patients in Group 2. Only one patient of Group 2 required additional sedation and analgesia.

Complications

Incidence of vessel puncture/hematoma was 10% in Group 2 compared to 0% in group 1. There was no incidence of nerve injury and pneumothorax in both groups.

Discussion

Supraclavicular approach for Brachial plexus block is an easy and relatively safe procedure for upper limb surgeries. It can be given either after eliciting paresthesia or using nerve stimulator or using ultrasonography.

This study is intended to compare USG guided supraclavicular brachial plexus block with the conventional method by eliciting paresthesia in terms of time taken for the procedure, onset and duration of sensory blockade, onset and duration of motor blockade, success rate and the incidence of complications.

In our study the mean time taken for the procedure to administer block in Group 2 was 10 min, whereas using an USG (Group 1) was 5.3 min.
The study done by Morros *et al*.7 suggest that the use of US in regional anesthesia requires the acquisition of new knowledge and skills by anesthesiologists.The mean time of onset of sensory blockade in Group 1(USG) was 5 ± 2 min and 6 ± 3 min in Group 2 and of motor block was 7 ± 3 min in Group 1 and 10 ± 5 min in group 2. This is similar to the study done by Danelli *et al*.(7) (2012).
The mean duration of sensory blockade was 270±30 min in Group 1 and in Group 2 240±30 min which was longer in group 1and for motor blockade in group 1 was 250 ± 30 min and in Group 2 was 225±30 min which was shorter in Group 2 when compared to Group 1.
There was no clinically and statistically significant difference in pulse rate, systolic and diastolic blood pressures between the two groups during all periods of the study.
Incidence of vessel puncture/hematoma was 10% in Group 2 compared to 0% in group 1. There was no incidence of nerve injury and pneumothorax in both groups.

CONCLUSION

From our study, it was concluded that:
• Success rate of the block was more with USG group than conventional
• Time taken for the block performed by USG was shorter than the conventional technique
• Onset of sensory and motor blockade was little earlier in USG group than in conventional group
• Duration of sensory and motor blockade was longer in USG group
• Complications like vessel puncture was seen with conventional method.

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6

COLOR DOPPLER EXAMINATION OF OPHTHALMIC ARTERY IN NORMAL TENSION GLAUCOMA.

Dr Anupama Mahant, Dr Vijay Damor.

Department of ophthalmology ,AMCMET medical college Ahmedabad pin 380008

Abstract:

Glaucoma can be defined as an optic nerve disease with typical morphological and functional changes. There are many risk factors associated with this neuropathy. The best known factor is an increased intraocular pressure there are however many other risk factors. Among them, vascular factors play a major role. Although such vascular factors have been postulated more than hundred years ago, it is only recently that the physiology and pathophysiology optic nerve head circulation is , to some extent, understood. Blood flow velocity in the extra-ocular vessels are reduced in patient with glaucoma. Reduced blood flow velocity may be secondary as well as contributory to glaucomatous damage. New instruments have been developed to measure ocular blood flow including blood flow in optic nerve head. Although most of the studies indicate that circulation is changed in glaucoma patients, there is little association between glaucoma seems rather to be a vascular deregulation leading to local vasospasm and to systemic hypotension.

Aims:

In confirmed cases of normal tension glaucoma by disc and field changes were subjected to (1) measurement of peak systolic volume, end diastolic volume, systolic/diastolic ratio, resistance index, pulsitivity index of ophthalmic artery to know about perfusion of disc (2) measurement of blood pressure (3) measurement of blood sugar (4) refer to physician to rule out any, cardiac, vascular central nervous system and any other etiological problem.

Introduction to subject

Definition of normal tension glaucoma (1) mean IOP without treatment consistently less than 21 mm of Hg on diurnal variation test with no single measurement greater than 24 mm of Hg.(2) open drainage angle on gonioscopy (3) absence of secondary cause of a glaucomatous optic neuropathy e.g. trauma, steroid instillation(4) typical optic disc damage with glaucomatous cupping or loss of neuroretinal rim (5) vascular field defect compatible with glaucomatous cupping. Normal tension

glaucoma is divided into two types (1) progressive (2) non progressive. No treatment is required in normal tension glaucoma patient who are stable. Treatment options: should be considered in patients who have progressive field defects or disc changes. Different authors have reported various rate of progression over various years: 40% - 10.5 years, 53% - at 3years, 62% - at 5 years. Prevalence of normal tension glaucoma increased from 0.2% in 43-54 years age group to 1.6% in those over 75 years.

Etiological factors:

(1) Role of abnormal blood flow: optic nerve blood vessels diameters may be affected by vasospastic element, which explains mechanism of damage in normal tension glaucoma in migraine, raynaud's phenomenon. Improvement in vasospasm by Ca++ channel blocker nifedipine give clues to improvement of visual field in some patients.
(2) Role of systemic hypotension: decreased perfusion of disc in hypoglycemia.

Pathophysiology

Pathophysiology of normal tension glaucoma is still incompletely defined. Although height of IOP remains? mark for glacumatous – optic nerve damage and field defects can virtually at any level of intra ocular pressure. Intra ocular pressure in normal tension glaucoma lies within normal limits, there is still suggestive factor that is a major ' risk factor ' for development of progression of disease. Damage increases in increase IOP with in normal limits.

Vascular theory

Vasospasm causes inadequate perfusion of critical neural tissue leading to tissue death at optic nerve level based largely on circumstantial evidence including association of normal tension glaucoma with migraine. Does the pattern of optic disc cupping differ between normal tension glaucoma and POAG? Tezel's group looked at large number of patients with normal tension glaucoma and POAG found increased peripapillary atrophy but they acknowledged that this was probably due to relatively late presentation of this group of patient. Hemorrhage at disc was found more commonly with normal tension glaucoma group. Pit like changes were found in normal tension glaucoma group. Are visual field defect different in normal tension glaucoma and POAG? Levence considered that frequency of dense defect extending within 5 degree of fixation was higher in normal tension glaucoma group than POAG. Neurological evaluation is routinely not indicated in normal tension glaucoma group unless some neurological cause suspected producing optic disc cupping.

Color Doppler introduction

It is a variation on a standard Doppler technique called color flow Doppler or color Doppler ultrasound or color Doppler imaging. This technology combines a real time gray scale ultrasound image of anatomic structures with a super imposed color coded vascular flow. The results of this

computer generated photographs of hemodynamic of small vessels. But at this stage of development smaller vessels cannot be measured. Color Doppler is usually used in ophthalmology for measuring flow in ophthalmic artery.

Methods and materials

32 eyes diagnosed as normal tension glaucoma on parameter for clinical diagnosis tonometry, disc changes, field changes, having mean age of 54 years are compared to same mean age group 10 eyes of controls with similar gender distribution and similar baseline intra ocular pressure and who are free of any disease. Criterias : PSV – peak systolic volume (meter/second), EDV – End diastolic volume (meter/second), S/D ratio, RI- Resistance index, PI- Pulsitivity index. Comparision of values were done among NTG and normal group. To examine the ophthalmic artery the sample volume segment along transmitted beam chosen for analysis was oriented nasally and superior to the optic nerve. Just lateral to and avoiding the visible hyporeflective stripe representing the nerve. The sample volume marker lay about 25 mm posterior to the globe. Strong signals are routinely detectable at this site.

Results:Total : 32 eyes, NTG group: 22 eyes,Control group:10 eyes.

(A) Sex distribution:

Sex	NTG group (no. of patients)	Percentage	Control group (no. of patients)	Percentage
Male	7	64	3	60
Female	4	36	2	40

(B) Age distribution:

Age (years)	NTG Group (no. of patients)	Percentage	Control group (no. of patients)	Percentage
45-55	3	27	1	20
56-65	4	36	2	40
66-75	4	36	2	40

(C) IOP distribution in study group(no. of eyes) (IOP taken by applanation tonometry):

IOP (mmHg)	NTG group (no. of Eyes)	Percentage	Control group (no. of Eyes)	Percentage
12.0	4	18	2	20
14.0	6	27	3	30
18.0	8	36	3	30
20.0	4	18	2	20

(D) C:D ratio changes among NTG group:

C:D ratio	NTG group (no. of eyes)	Percentage
0.5	6	27
0.6	4	18
0.7	6	27
0.8	3	14
0.9	2	09
Full cup	1	05

(E) Field defects among NTG group (no. of patients):

Type of field defect	No. of eyes	Percentage
Few absolute /relative scotomas	8	36
Superior zone defect	8	36
Both zone defects	2	09
Inferior zone defects	3	14
Temporal island	1	05

(F) NTG group predisposing factors:

Condition	No. of patients
Hypotension	5
Hypertension	2
Hypoglycemia	3
Sudden blood loss	1
Cardiac problems	1
DM	0

(G) Distribution of Doppler values in study groups (no. of eyes):

(A) Peak systolic velocity(PSV) (meter/second)

PSV (M/S)	NTG group (no. of eyes)	Percentage	Control group (no. of eyes)	Percentage
<0.10	2	09	0	0
0.10-15	6	27	0	0
0.16-20	4	18	0	0
0.21-25	6	27	3	30

0.26-30	2	09	4	40
>0.30	2	09	3	30

(B) End diastolic velocity (meter/second) (EDV):

EDV (M/S)	NTG group (no. of eyes)	Percentage	Control group (no. of eyes)	Percentage
0.03-0.06	12	55	0	0
0.07-0.09	6	27	0	0
0.10-0.12	2	09	5	50
0.13-0.15	2	09	5	50

(C) Resistance index (RI)

RI	NTG group (no. of eyes)	Percentage	Control group (no. of eyes)	Percentage
<0.50	1	05	0	0
0.51-60	3	14	7	70
0.61-70	8	36	3	30
0.71-80	8	36	0	0
0.81-90	2	09	0	0

(D) Mean values of Doppler study

Doppler criteria	NTG group	Control group	P value
PSV (M/S)	0.19 (M/S)	0.28(M/S)	>0.1
EDV(M/S)	0.06(M/S)	0.12(M/S)	>0.1
RI	0.68	0.55	>0..1
PI	1.21	1.41	>0.1

The 22 eyes in normal tension glaucoma group and 10 eyes in the control group were tested for significance by ‘z’ test. Both group had similar age and gender distribution. Baseline intraocular pressure was also similar in two groups. Color Doppler imaging of ophthalmic artery showed significantly reduced peak systolic velocity(P>0.1) at baseline

in normal tension glaucoma group. The end diastolic velocity was significantly reduced ($p>0.1$) at baseline in the ophthalmic artery in the normal tension glaucoma group. The calculated resistance index was significantly higher ($p>0.1$) in the ophthalmic artery in the normal tension glaucoma group at baseline. The pulsitivity index was significantly lower ($p>0.1$) in the ophthalmic artery in the normal tension glaucoma group at baseline.

Conclusion

(A) We conclude that increased resistance index, decreased peak systolic velocity, end diastolic velocity and pulsitivity index of ophthalmic artery in NTG group proves vascular theory of NTG.

(B) This indirect evidence of vasospasm in the orbital vascular bed in patients with normal tension glaucoma, may have implications for treatment of this disease. For example interventions that directly provoke vasodilatation or limit vasospasm, might conceivably be therapeutic.

(C) In some cases such as hypotension, hypoglycemia and sudden blood loss may play role in development of normal tension glaucoma which produces temporary lowering of blood perfusion in optic nerve which remains as a non- progressive damage to disc and field. That is why normal tension glaucoma is divided into progressive and non-progressive group.

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7

COMPARISON OF EVEROLIMUS-ELUTING AND SIROLIMUS-ELUTING CORONARY STENTS IN 1 YEAR CLINICAL AND ANGIOGRAPHIC FOLLOW UP: A RETROSPECTIVE COHORT STUDY.

Dr Gupta Ankur , Dr Panchani Nirav, Dr Tamakuwala Krunal, Dr Rawal Jayesh
Department of Cardiology, Smt S.B.K.S. Medical Institute and Research Centre, Piparia, Dist.Vadodara, Gujarat. INDIA

ABSTRACT

Background:
Everolimus and sirolimus releasing new-generation coronary stents have been shown to reduce the risk of restenosis. However, efficacy and safety between the two types of stents in terms of end points is unclear.
Similar outcomes have been reported in several recent randomized trials comparing everolimus-eluting stent (EES) and sirolimus-eluting stent (SES).

Methods and results:
In this study, a retrospective cohort study was done in the patients who underwent stent implantation using SES or EES. Comparison between SES and EES was done in patients who presented for follow up in our cardiology department over one year after their angioplasty. The study was carried out for evaluating non-inferiority of EES as compared to SES in terms of late ST and ISR requiring TRL. Out of the total 136 patients, 60 had SES implantation and 76 had EES implantation. All of these patients were subjected to coronary angiography after 1 year to look for patency of the stent. In-stent restenosis (outcome) was found in 3 patients in SES group and 4 patients in EES group respectively. All 7 patients who had ISR were suffering from diabetes and hypertension. Association between diabetes & ISR (Chi square= 5.488; p= 0.01; considering 95% CI) and hypertension & ISR (Chi square= 6.756; p= 0.00) is significant. While comparing the two stents: Everolimus-Eluting and Sirolimus-Eluting Coronary Stents with the outcome i.e., in-stent restenosis and target lesion revascularisation (Chi square= 0.005; p= 0.94) with 95% CI, no significant difference between the two stents was found. Hence the null hypothesis, that there is no significant difference between use of Everolimus-Eluting and Sirolimus-Eluting Coronary Stents on clinical and angiographic follow up is accepted.

Conclusions:
At the end of 12 months, everolimus-eluting stent was non-inferior to and had similar results to SES implantation in terms of clinical and angiographic outcome in a population of patients who had minimalexclusion criteria.

Key words: Everolimus. Sirolimus. Stent. Restenosis. Thrombosis.

Address for correspondence: Jayesh Rawal, Department of Cardiology, Smt S.B.K.S. Medical Institute and Research Centre, Piparia, Dist.Vadodara, Gujarat. INDIA

INTRODUCTION

As currently used in clinical practice, "drug-eluting" stents (DES) refers to metal stents that elute a drug designed to limit the growth of neointimal scar tissue, thus reducing the likelihood of stent restenosis.[1]Percutaneous coronary revascularization is a mainstay in the management of coronary artery disease.[2] The issue of restenosis has been the focus of intensive research since the introduction of PTCA, and DES have come a long way in inhibiting in-stent neointimal hyperplasia while exploiting the mechanical scaffolding properties of the metallic stent platform. On the other hand, DES are not immune from adverse effects. The most fearsome is stent thrombosis, which if often due to improper stent implantation[3]and/or incomplete endothelialization of stent struts.[4] To minimize this risk, prolonged dual antiplatelet therapy with aspirin and a thienopyridine (either clopidogrel or ticlopidine) is routinely recommended after DES implantation, from a minimum of 2 months (in the RAVEL trial)[5] to a maximum of 12 months as currently enforced by international guidelines.[6]SES was the first-generation DES that had been most widely used and most extensively studied in the past decade.[7] Although SES has substantially reduced restenosis after coronary stent implantation, late adverse events such as very late stent thrombosis (ST) and late target-lesion revascularization (TLR) occurring beyond 1 year emerged as new problems associated with use of SES.[8,9]Everolimus-eluting stent (EES), a second-generation DES, is a cobalt chromium alloy stent releasing a reduced dose of everolimus in comparison with the dose used in SES.[2] Clinical efficacy data of DES are to date quite satisfactory, whereas clinical safety data are promising but yet incomplete as limited only to early and mid-term follow-up (≤12 months).

MATERIAL AND METHODS

Study design

This is a retrospective cohort study. It consists of all cases that underwent PTCA and were implanted with Sirolimus or Everolimus Eluting stents in Dhiraj General Hospital, Vadodara, Gujarat without any exclusion criteria. Comparison between SES and EES was done in patients who presented for follow up in our cardiology department over one year i.e. May 2014 to May 2015 after their PCI. Based on angiographic and clinical outcome in terms of late ST and ISR requiring TRL, outcome variables were set. The study was carried out for evaluating non-inferiority of EES as compared to SES in terms of late ST and ISR requiring TRL. A total of 136 patients who underwent stent implantation using SES or EES one to one and half year back agreed to be part of our study and constituted our cohort. Out of these 136 patients, 60 had SES implantation and 76 had EES implantation. The study protocol was approved by the institutional review board. Written informed consent was obtained from all the study patients.

Study Procedures

EES was available in diameters of 2.50, 2.75, 3.00, and 3.50 mm with each available in lengths of 12, 15, 18, 23 and 28 mm. SES was available in diameters of 2.50, 2.75, 3.00, and 3.50 mm, and in lengths of 13, 16, 19, 24, 29, 32, 37, 40. All of these patients were subjected to coronary angiography after 1 year to look for patency of the stent. Patients were assessed clinically and evaluated at the end of 12 months. They were asked specific questions about the interim development of angina, according to the Canadian Cardiovascular Society classification of stable angina and the Braunwald classification of unstable angina. Coronary angiography was done for all patients who came for follow up after one year of angioplasty. Baseline, post procedure and 1 year follow up angiograms were assessed in these patients for analysis. The target segment was defined as the entire segment involving the implanted stent and the 5-mm proximal and distal edges adjacent to the stent. A segment treated with multiple overlapping stents was regarded as a single target segment. Information on the technical details for the index PCI procedure was recorded during or immediately after the procedure by the dedicated technicians in the cardiac catheterization laboratory.

Antithrombotic Therapy

Unfractionated heparin was used during the procedure for anticoagulation. The antiplatelet regimen used in our institution was aspirin **(150 mg daily) indefinitely and 75 mg clopidogrel or 10 mg prasugrel once a day for 1 year.**

Quantitative Coronary Angiography

Baseline and postprocedure angiograms were assessed in all patients. Coronary angiography evaluation was done using Cardiovascular Angiography Analysis System – XceleraR3.1L1**.** The entire segment involving the implanted stent and the 5-mm proximal and distal edges adjacent to the stent was defined as the target segment. A segment treated with multiple overlapping stents was regarded as a single target segment. The patients who were enrolled for the study, follow-up angiographieswere performed 365 days after the index PCI procedure.

In-segment late lumen loss was taken as the primary end point for the angiographic substudy. In-stent late loss, percentage of diameter stenosis at follow-up, and binary restenosis was included as the secondary angiographic end points. Diameter stenosis of ≥50% was defined as the binary restenosis.

Statistical Analyses

Continuous variables were expressed as mean value ± SD or median with interquartile range. Data was analysed using statistical variant analysis or SPSS after applying tests like chi square test.Categorical variables were compared with the χ^2 test or Fisher exact test. All statistical analyses were performed by a statistician. All reported probability values were2-sided and probability values of <0.05 were regarded as statistically significant.

RESULTS

Revascularization Procedures and Patient Characteristics

Retrospective cohort study was done in the patients who underwent stent implantation using SES or EES in Dhiraj Hospital, Vadodara. Comparison between SES and EES was done in patients who presented for follow up in our cardiology department over one to one and half years after their index PCI. The analysis was carried out for a total of 136 patients who were enrolled in the trial. Out of these 136 patients, 60 had SES implantation and 76 had EES implantation. All of these patients were

subjected to coronary angiography on their follow-up visit i.e., after 1 year to look for patency of the stent. The study population included patients with advanced age, diabetes mellitus, smoking and multivessel coronary artery disease, heart failure, small-vessel disease, chronic total occlusion, and bifurcation lesions. Baseline clinical and lesion characteristics were well balanced in both the groups taken up for study.

Clinical Outcome

Out of these 136 patients in-stent restenosis (outcome) was found in 3 patients in SES group and 4 patients in EES group respectively. The back records at the time of their angioplasty (at time of presentation), around one to one and half year back, were tracked and referred. Certain exposure variables like age, sex, diabetes and hypertension status etc were considered for analysis. Average age of the study population was 58.7 years (SD: 9.2 years, ranging 29-79 years). The study population comprised of 97 males and 39 females, out of them 5 males and 2 females showed signs of ISR. In 57.4% patients gave history of diabetes and 52.2% were suffering from hypertention, while 55.9 of them were chronic smokers. 39.7% of these patients presented on their first visit with MI and while 30.1% presented Unstable and Stable angina each. Mean age of patient with restenosis is 61.8 years and without restenosis is 58.3 years. All 7 patients of restenosis were suffering from diabetes and hypertension. Association between Diabetes & In-stent restenosis (*Chi square= 5.488; p= 0.01; considering 95% CI)* and Hypertension & In-stent restenosis (*Chi square= 6.756; p= 0.00)* is significant. Although 5 out of 7 restenosis patients were chronic smokers, the association is found to be insignificant (*Chi square= 0.723; p= 0.39).* Sirolimus-Eluting Coronary Stents were used in 24 patients with MI, 17 with Stable angina and 19 with Unstable angina whereas Everolimus-Eluting Coronary Stents were used in 30 patients with MI, 24 with Stable angina and 22 with Unstable angina. No significant association between presenting disease (MI and Angina) and outcome (In-stent restenosis) was found; for instance h/o MI and in-stent restenosis (*Chi square= 0.382; p= 0.53),* h/o Stable angina and in-stent restenosis (*Chi square= 0.009; p= 0.92),* h/o Unstable and in-stent restenosis (*Chi square= 0.382; p= 0.53).* Post stent placement patients were either put on Prasugrel or Clopidogrel and that too seem to have no significant association with outcome, restenosis *(Chi square= 0.007; p= 0.93)*

DISCUSSION

The primary clinical end point was met in this study byshowing the noninferiority of the EES, as compared with the SES. The study population has the minimal exclusion criteria. In this study, no significant difference was found between the two stents used. Hence the null hypothesis, that there is no significant difference between use of Everolimus-Eluting and Sirolimus-Eluting Coronary Stents on clinical and angiographic follow up is accepted.A similar efficacy and safety outcome has been suggested in previously reported randomized trials comparing EES with SES.[10-16] The biohazard of late stent thrombosis was recognized by a Food and Drug Administration panel in 2006.[17,18]A broad, unselected patient population, which would be more representative of everyday clinical practice was recommended that future trials should address to. Our study had the minimal exclusion criteria which resulted in enrollement of a large proportion of patients. This lack of stringent exclusion criteria led to enrollement of patients with acute myocardial infarction, multivessel intervention, small-vessel disease, long lesions. These are the types of cases that are encountered in contemporary practice. Thus, the results were consistent across all predefined subgroups.Overall in our study, we observed no significant between-group difference in overall rates of stent thrombosis. Likewise, rates of stent thrombosis were low and similar to those in previous studies involving all comers or patients with acute coronary syndromes.[19-23] In regards to the use of antiplatelet theraphy, no significant difference was observed between the two groups in our study.

A recent observational study was done comparing EES with a historical control group of SES. This study suggested a lower 3-year risk for TVR in the EES group.[24] We could not exclude the possibility of superior antirestenostic efficacy of EES in our study group because of the limited duration of follow up. Future long term follow up is required in such studies to establish a more concrete

difference if any between the two groups with a possibility of superior antirestenostic effects of EES. Furthermore, we would like to continue follow up of our study population for a period of 3 years.

CONCLUSION

In conclusion, the new-generation everolimus-eluting stent was found to be as safe and effective as the
sirolimus-eluting stent. EES implantation was non-inferior to and had similar results to SESimplantation after one year in terms of clinical and angiographic outcome. Both the SES and EES groups showed a similarefficacy and excellent outcome after one year with a very low rate of in-stent restenosis, stent thrombosis and target-lesion revascularization.

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8

Study of pulmonary functions in Yoga performing group and non-Yogics

Dr. Nilay A. Kapadia*, Dr. Ashok Goswami, Dr. Prakash Chaudhari*, Dr. Kalpan Desai*Dr Janardan V Bhatt @ *P.G.Student, Department of Physiology, B.J.Medical College,Ahmedabad**Associate Professor, Department of Physiology,B.J.Medical college,Ahmedabad @ Yoga laboratory ,AMCMET medical college Ahmedabad pin 380008**

Abstract:

INTRODUCTION: Yoga means “the unity of body and mind.” Yoga has a great value of as a method of preservation of health and treatment of various diseases. Practicing yoga contributes in the improvement of pulmonary ventilation and gas exchange. MATERIALS & METHODS: This study consists of two groups- yoga practitioners (study group) and sedentary subjects (control group). Different pulmonary function tests (FVC, $FEV_{1,}$PEFR,FEV_1/FVC Ratio) were done in both the groups to determine lung functions.
RESULTS: The study revealed that the sedentary subject's performance on PFT was poorer when compared with yoga practitioners and this difference was statistically highly significant.
CONCLUSION: There is the need for sedentary subjects to change their life-style and adopt measures like yoga regularly to be healthy.

Introduction

Yoga, 3000 years old tradition, is a Sanskrit word which means “the unity of body and mind”. It is the science of simple living that balances all aspects of life – the physical, mental, emotional, psychic and spiritual.Classical literature on yoga indicates that it is of great value as a method of preservation of health and treatment of various diseases.Yoga practice consists of the five-principle

I. proper relaxation
II. proper exercise
III. proper breathing
IV. proper diet
V. positive thinking and meditation.

Yoga respiration consists of very slow, deep breaths with sustained breath hold after each inspiration. Practicing yoga contributes in the improvement of pulmonary ventilation and gas exchange. It also helps in the prevention, cure and rehabilitation of patients with respiratory illnesses by improving ventilatory functions.Pulmonary function tests (PFT) serve as a tool of health assessment and also to some extent as a predictor of survival rate[I].PFT provide qualitative and quantitative assessment of pulmonary function in patients with obstructive and restrictive lung diseases[II].Pulmonary functions are generally determined by the strength of respiratory muscles, compliance of the thoracic cavity, airway resistance and elastic recoil of the lungs.The tests used to describe pulmonary function are the lung volumes and lung capacities.The pulmonary function capacities of normal sedentary individuals have been studied extensively in India, but less in the context of comparison with yogic population practicing yoga[V].Hence the present comparative study was undertaken on a large randomly selected sample of yoga practitioners and compared with matched control of sedentary group.This study tested the hypothesis that yoga training improved chest wall expansion and

lung volumes in young healthy adults when compared to sedentary adults without yoga training.

Materials And Methods

The study population comprised

I. yoga practitioners as the study group

II. sedentary subjects as the control group selected randomly.

The study group consisted of those practicing pranayama, yogasana and other yogic techniques for at least 1 h/day, 5 days a week for more than 1 year are selected randomly from list of yoga practioners from two different yoga centers in Ahmadabad city.

The sedentary group comprised subjects not practicing yoga and a leisure-time physical activity or activities done for less than 20 min or fewer than 3 times/week.

Study population : Study group – 25

Control group – 25

For each subject in the study group, a similar subject matched for age and gender was identified from urban population aged between 30 and 70 years, non-obese and willing to participate in the study. Informed written consent was taken from the subjects that met the inclusion criteria of the study. Inclusion criteria:- Aged between 30 and 70 years, non-obese, willing to participate, non-smokers and free from active respiratory diseases. Exclusion criteria:- Smokers (cigarettes, beedies, chutta and tobacco chewing), subjects with active respiratory disorders, epileptic disorders and those not willing to participate. The PFT were carried on all these subjects as per the procedure and guidelines mentioned by Twisk *et al*[IV], after explaining the procedure in local language to each subject. The test was carried out in a well-ventilated spacious room with ambient temperature ranging from 28°C to 35°C respectively. Measurements of PFT were taken between 8 am and 12 noon to avoid diurnal variations in lung functions. The tests were carried by a well-trained doctor familiar with SPIROLAB 111 (computerized spirometry) after reinforcing the method of a test to each subject. The five tests of pulmonary function were taken into consideration and the values obtained were recorded. The best value from three measurements was considered after recording by a spirometer. The tests chosen were:

I. Percentage of forced vital capacity (%FVC)

II. Percentage of forced expiratory volume in 1st second (%FEV1)

III. Percentage of peak of expiratory flow rate (%PEFR)

IV. Percentage of FEV1/FVC ratio.

Anthropometric measurements like height and weight of each subject was measured before the test procedure.

I. Weight was recorded in kilograms (kg)

II. Height was measured in centimeters (cm)

III. Information was collected regarding the socio-demographic data, smoking history, recent respiratory illness, medications used and about the family history of any bronchial asthma. A detailed clinical examination was done to exclude any cases with respiratory and systemic disorders.

IV. Data after collection was entered on Microsoft Excel spread sheet and analyzed using SPSS version 17.0 (SPSS Inc., Chicago, IL, USA) statistical software. The data was checked for normal distribution. Mean and standard deviation (SD) were calculated for quantitative data. All values are presented as mean ± SD. Comparison of mean values between the two groups was done using unpaired *t*-test for significance. All statistical tests were two-tailed and $P < 0.05$ was considered to be significant

Results

VARIABLES	GROUP	MEAN (SD)	T VALUE	P VALUE
AGE (Years)	YOGA SEDENTARY	45.3 (9.3) 47.1 (8.5)	1.82	>0.05*
WEIGHT(Kg)	YOGA SEDENTARY	57.2 (8.6) 59.5 (9.3)	1.37	>0.05*
HEIGHT(Cm)	YOGA SEDENTARY	160.5 (8.0) 158.2 (9.3)	1.12	>0.05*
BODY MASS INDEX	YOGA SEDENTARY	22.6 (2.8) 24.4 (4.6)	1.92	>0.05* (*= Not significant)

VARIABLES	GROUP	MEAN (SD)	T VALUE	P VALUE
FVC	YOGA SEDENTARY	109.1±18.2 86.8±16.9	8.03	<0.001** (**= Highly significant)

FEV_1	YOGA SEDENTARY	116.3±15.9 85.8±14.8	9.91	<0.01**
PEFR	YOGA SEDENTARY	109.2±21.3 90.5±14.4	4.58	<0.01**
FEV_1 / FVC RATIO	YOGA SEDENTARY	111.3±6.9 102.0±11.8	2.86	<0.05* (*=Significant)

Pulmonary function test variables between the two groups

Discussion:

In the present study, significantly higher values of pulmonary functions were observed among subjects practicing yoga as compared to sedentary subjects who did not practice yoga. It was observed subjects who were practicing yoga since last 1 year had better FVC values than the sedentary subjects. Similarly Prakash *et al*[III]. have reported that the mean FVC value for yoga practitioners was 98 whereas in sedentary subjects the values were lower and they are in agreement with the present study. Yadav and Das[VI] in their study also observed that there was a significant increase in FVC among the subjects exposed to yogic exercises for 12 weeks. The changes in the FVC values depend upon the duration of yoga training.In the present study observations revealed PEFR values in yoga practitioners were much higher than the sedentary subjects. In a study of yoga for asthmatics found improvement in the peak flow rate after yoga training for 2 weeks. Yadav and Das[VI] also observed a significantly higher PEFR value after 12 weeks of yoga training, but not statistically significant values after 6 weeks of training indicating that the duration of yoga training plays a role in PEFR. In contrast, Joshi et al.[II] observed a significant increase in PEFR even at 6 weeks of pranayam training with only pranayamic practice lasting for 20 min twice a day. Improvement in vital capacity among yoga practitioners in the present study may be due to increase in the development of respiratory musculature incidental to regular practice of yoga. The findings of the present study can also be explained on the basis of better functions of respiratory muscle strength, improved thoracic mobility and the balance between lung and chest elasticity which the yoga practitioners may have gained from regular yoga. The other possible mechanism for improved PFT in yoga practitioners as mentioned by Yadav and Das[VI] are:

I. Increased power of respiratory muscles that is due to the work hypertrophy of the muscles during yoga and other exercises
II. Yogic breathing exercises train practitioners to use the diaphragmatic and abdominal muscles more efficiently thereby emptying and filling the respiratory apparatus more efficiently and completely.

The present study also showed that the sedentary group had lowest values of pulmonary function compared to yoga practitioners. Sedentary life-style is associated with development of restrictive lung function. We recommend that sedentary people should adopt yogic exercises for improving their health. Hence regular practice of

yoga should be promoted among the sedentary subjects that may bring desirable physiological, psychological and physical changes in the individual.

Conclusion

This study agrees with previous reports and supports the health benefits of yoga.The study revealed that the sedentary subject's performance on PFT was poorer when compared with yoga practitioners. This emphasizes the need to change their life-style and adopt measures like yoga regularly to be healthy.

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9

A Comparative Study on Gender Based Alteration in Color Perception in young adults

Dr Kalpan R Desai,Dr Prakash Chaudhari,Dr Hemendra Suthar
P.G.Students,Dept. Of Physiology, BJMC, Ahmedabad

Abstract

INTRODUCTION: Sense of Vision is very important as about 80% of the information which we get through all the senses, is visual . This information become more meaningful and informative when these are colourful.

MATERIALS & METHODS: The study was carried on 60 ocular healthy subjects . They were divided in two groups .First group was having 30 male individuals while second group was having age matched 30 female individuals. Exclusion criteria was any previous or present eye and colour vision related problems.The task was to match 25 colour strips with 2 shade charts of different colours.

RESULTS: It was found that females gave more correct responses as compared to males and this difference was statistically highly significant

CONCLUSION: In human retina ,three types of cones are there:short wavelength (blue) sensitive cones,medium wavelength (green) sensitive and long(red) wavelength sensitive cones . Different wavelength of light stimulate this cones with different intensity. At the end we conclude that females can discriminate more shades of colors than males.

INTRODUCTION

Sense of Vision is very important as about 80% of the information which we get through all the senses, is visual [IV]. This information become more meaningful and informative when these are colourful. Colour vision is the ability of the eyes to discriminate between the light rays of different wavelengths. About 8% of men exhibit a hereditary deficiency of colour perception. Therefore this study was planned in a very simple and interesting manner to evaluate the color perception in two sexes of same age groups. Color vision is the ability of an organism to distinguish objects based on the wavelengths (or frequencies) of the light they reflect, emit, or transmit. Colors can be measured and quantified in various ways; indeed, a person's perception of colors is a subjective process whereby the brain responds to the stimuli that are produced when incoming light reacts with the several types of cone cells in the eye. In essence, different people see the same illuminated object or light source in different ways. Perception of color begins with specialized retinal cells containing pigments with different spectral sensitivities, known as cone cells. In humans, there are three types of cones sensitive to three different spectra, resulting in trichromatic color vision.Each individual cone contains pigments composed of opsin apoprotein, which is covalently linked to either 11-cis-hydroretinal or more rarely 11-cis-dehydroretinal[vi].The

cones are conventionally labeled according to the ordering of the wavelengths of the peaks of their spectral sensitivities: short (S), medium (M), and long (L) cone types. These three types do not correspond well to particular colors as we know them. Rather, the perception of color is achieved by a complex process that starts with the differential output of these cells in the retina and it will be finalized in the visual cortex and associative areas of the brain. For example, while the L cones have been referred to simply as red receptors, microspectrophotometry has shown that their peak sensitivity is in the greenish-yellow region of the spectrum. Similarly, the S- and M-cones do not directly correspond to blue and green, although they are often described as such. The RGB color model, therefore, is a convenient means for representing color, but is not directly based on the types of cones in the human eye. The peak response of human cone cells varies, even among individuals with so-called normal color vision; in some non-human species this polymorphic variation is even greater, and it may well be adaptive.

MATERIALS & METHODS

The study was carried out in Aroma College of Commerce,Usmanpura,Ahmedabad on 60 ocular healthy subjects of both sexes between 18 – 22 yrs of age. They were divided in two groups .First group was having 30 male individuals while second group was having age matched 30 female individuals. Exclusion criteria was any previous or present eye and colour vision related problems.The task was to match 25 colour strips with 2 shade charts of different colours. The experiment was done at the same place for all the studests and the lighting conditions that were provided remained same for all the students. Total no. of correct answers and total time taken in matching all the test colour strips with shade charts was recorded in both sexes with the help of stop watch and analyzed. Mean and SD was calculated for both groups and unpaired t test was done to find out p value.

RESULTS

	Correct response (25 strips)	**Time taken (sec)**
Male(n=30)	21.30±1.70	429±75.29
Female(n=30)	23.00±1.49	330.43±64.38
	P<0.001*	P<0.0001**

*-Highly significant ** - Extremely significant

Colour Wise Correct Respon

Colour	Male(n=30)	Female(n=30)
Red	16	26
Green	21	28
Blue	28	27
Purple	27	27
Orange	24	27
Grey	27	29

RESULTS

Out of 25 test colour strips the total no. of correct response was compared in both males and females. It was found that females gave more correct responses as compared to males and this difference was statistically highly significant. Other than this females also took less time than males in matching all the colour test strips with the shade charts and this difference in duration was also found statistically extremely significant .

DISCUSSION

Color processing begins at a very early level in the visual system (even within the retina) through initial color opponent mechanisms. Both Helmholtz's trichromatic theory, and Hering's opponent process theory are therefore correct, but trichromacy arises at the level of the receptors, and opponent processes arise at the level of retinal ganglion cells and beyond. In Hering's theory opponent mechanisms refer to the opposing color effect of red–green, blue–yellow, and light–dark. However, in the visual system, it is the activity of the different receptor types that are opposed. Some midget retinal ganglion cells oppose L and M cone activity, which corresponds loosely to red–green opponency, but actually runs along an axis from blue-green to magenta[vii]. Small bistratified retinal ganglion cells oppose input from the S cones to input from the L and M cones. This is often thought to correspond to blue–yellow opponency, but actually runs along a color axis from lime green to violet.In this study female subjects showed statistically significant better matching of colours in comparison to their male counter parts and that also taking less time.In human retina ,three types of cones are there:short wavelength (blue) sensitive cones,medium wavelength (green) sensitive and long(red) wavelength sensitive cones . Different wavelength of light stimulate this cones with different intensity.Final outcome is amalgamation of these three types of cones. Physiological cause behind difference of the color perception in males and females is based on colour gene that is present on X-chromosome particularly for Red and Green [I]. As two X chromosome present in female creating opportunity for one type red

cone to be activated on one X chromosome and other type of red cone on the other one. That may seen sometimes for green cone also. So, at the end we conclude that females can discriminate more shades of colors than males [III].

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10

STUDY OF EFFECT OF SMOKING ON SERUM CALCIUM LEVELS IN HEALTHY MALE INDIVIDUALS

Dr Prakash Chaudhari*,Dr Ashok Goswami, Dr Hemendra Suthar*, Dr Kalpan Desai***

***PG Student, **Associate Proffesor,Department of Physiology, B.J.Medical college, Ahmedabad.**

ABSTRACT:

Objective: Smoking is an important determinant of numerous diseases. Electrolytes and minerals are involved in most cellular activities and assume a major role in metabolism. Smokers are at greater risk for cardiovascular diseases, respiratory disorders, cancer, peptic ulcers and gastroesophageal reflux disease,

INTRODUCTION

- World wide more than 3 million people currently die each year from smoking, half of them before the age of 70, an enormous human cost, and more than one third have cardiovascular events that often determine permanent disability of affected subjects[XI]. Apart from Tar cigarette smoke contain many harmful carcinogenic constituents, including metals, PAHs, dioxins, and some non -volatile nitrosamines. Smokers are at greater risk for cardiovascular diseases, respiratory disorders, cancer, peptic ulcers and gastroesophageal reflux disease, blindness, bone matrix loss, and hepatotoxicity[I]. Cigarette smoking has been identified as a risk factor for low bone mineral density and osteoporotic fracture. There are wide variety of mechanisms by which smoking induces bone toxic effects. A decrease in intestinal calcium absorption, low body weight and earlier menopausal age have been described. There is also a direct toxic effect on bone and alterations in blood supply of the femoral head. However, the most prominent mechanism seems to be their action on estrogen metabolism.Smoking decreases the estradiol level. Estradiol favors the retention and elevation of calcium as well as phosphorous and skeletal deposition of calcium as a result of calcification and ossification of bones. Estradiol prevents osteoporosis which is frequently seen in menopausal women when estrogen decreases. In addition, smoking has been associated with vitamin D metabolism derangement[VII]. The present study was conducted to determine the calcium level in the serum of cigarette smokers and non-smokers.Electrolyte disturbances may lead to severe and even life-threatening metabolic abnormalities such as coronary heart disease, liver disease, lungs infection, kidney failure, disordersof endocrine system.

Hence, the present study is aimed to understand the influence of electrolyte alterations on serum lipid profile and enzymes in chronic cigarette smokers.

MATERIALS AND METHODS

- This was a cross-sectional study was conducted in which 60 volunteers between the age group of 30-45 years were included. They were divided in 2 groups. 30 male subjects who were smokers with history of smoking for at least 5-10 years and smoking minimum 6-12 cigarettes per day were taken as cases and 30 nonsmokers volunteers with age and sex matched were taken as controls. Any volunteer with history of any illness or evidence of any disease that may affect bone and mineral metabolism, particularly chronic renal failure, chronic liver disease, malabsorption, and endocrine disorders and use of any drugs which can affect the electrolyte level were excluded from the study. All the volunteers were well informed about the experimentation and their written consent was obtained. Blood samples from overnight fasted subjects were used for the study. Blood samples drawn from human volunteers by venipuncture and were used immediately for analysis. Detection of serum calcium was done by automated analyzer in High-Tech Lab of Civil Hospital, Ahmedabad. Data were subjected to statistical analyses, values are means ± S.D. of 30 subjects in each group. Two-sided paired Student's *t-test was performed for finding significant difference* between the groups. *$p < 0.05$ was considered* statistically significant.

RESULTS

Variable	Case (n=30)	Controls (n=30)	P value
Age	45.35±17.890	43.00±18.036	0.517
BMI	23.10±1.55	22.32±1.76	0.508
Pulse rate	81.5±10.2	80.6±9.8	0.62
SBP	140.7±4.3	136.1± 4.4	P<0.05*
DBP	75.8±6.1	75.2±5.8	0.42
Serum Calcium (mg/dl)	9.63± 0.32	7.71 ± 0.27	P<0.05*

Above table shows comparison of different variables and serum calcium levels among both groups. It suggests that mean age of case group was 45.35±17.890 and in control group

mean age was 43.00±18.036,and the difference is not significant. From table it is also evident that BMI of smokers was slightly higher than non-smokers but again the difference was not significant. Among the vital parameters significant difference was found only in systolic blood pressure which was 140.7±4.3 in case group and 136.1± 4.4 in control group. While pulse rate and diastolic blood pressure do not show significant difference. Serum calcium was 9.63± 0.32 in smokers and 7.71 ± 0.27 in non smokers which suggests smokers have significant higher serum calcium level as compared to non-smokers.

DISCUSSION

Cigarette smoking is a world-wide major cause of preventable morbidity and mortality[VI,VIII,V].Cigarette smoke consists of many chemicals, including nicotine, tar with its many carcinogens,
and gaseous compounds including carbon monoxide (CO)[IV,II]. CO was shown to accumulated in the human body with repeated smoking. Chronic exposure to low levels of CO results in tissue hypoxia. Hypoxia represents a stress that induces cell growth arrest and injury, probably as a result of decreased blood oxygen carrying capacity[XII]. Increased carboxyhemoglobin and decreased oxyhemoglobin might have resulted in respiratory acidosis and electrolyte imbalance. It has since long been known that blood pressure and heart rate increase during smoking. These effects are specifically associated with nicotine while the other components of which more than a thousand have been isolated seem to be of minor importance. The rise in blood pressure is due both to an increase in cardiac output and total peripheral vascular resistance. Increase in serum calcium levels of chronic cigarette smokers are correlated with increase in plasma lipid profile. Increase in calcium concentration was negatively correlated with serum HDLcholesterol and positively correlated with LDLcholesterol. HDL may be involved in the modulation of calcium channels and its decrease might have increased the concentrations of calcium in the plasma of chronic cigarette smokers[IX]. Serum calcium may be an independent risk factor for myocardial infarction in middle-aged men followed for 18 years[X]. Cigarette smokers are susceptible to coronary heart diseases. It has been reported that the severity of coronary atherosclerosis is closely related to coronary artery calcification, which itself may correlate with serum calcium and phosphorus concentrations. Similar results were also found in study done by A. Supervía, X. Nogués, A. Enjuanes, J. Vila, L. Mellibovsky, S. Serrano, J. Aubía, A. Díez-Pérez[XIII] we found a significant differences in between serum calcium, serum phosphate and serum alkaline Phosphatases level. Brot C, Jorgensen NR, Sorensen OH[III] also found the same relation between serum calcium level and smoking.

CONCLUSION:

This was a comparative cross-sectional study done in the general population of Ahmedabad district where 30 smokers and 30 non smokers healthy volunteers were compared for serum calcium levels. Although our study does suggest higher serum calcium levels in smokers but it is not applicable to general population because of smaller sample size and also not taking into consideration other factors such as Vitamin D level, serum PTH level, Serum estrogen level etc. which may affect calcium metabolism. So, further research is needed in this regard.

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11

Study of Electrocardiographic changes with BMI in normal individuals

Dr Hemendra Suthar*,Dr Ashok Goswami, Dr Kalpan Desai*,Dr Prakash Chaudhari***

***PG Student,**Associate Proffesor, Department of Physiology, B.J.Medical College,Ahmedabad.**

ABSTRACT:

Objective: To study the electrocardiogram in asymptomatic obese young adults in the form of shift of the axis; voltage of the ECG complexes; P, QRS and T waves; PR and QT intervals; and ST segment and to assess the risk involved in obesity and predict the future cardiovascular diseases.

Design: Cross-sectional study.

Materials and Methods: 100 volunteered for this study (age range 18-40 years),which were devided in two groups according to BMI.50 subjects with BMI<25kg/m^2 as controls and 50 subjects with BMI >30kg/m^2 as cases . The Body Mass Index (BMI) was calculated by measuring height and weight of the subjects; systolic and diastolic blood pressure and ECG recording by standard method. The results among variables in respective groups of subjects were calculated using relevant statistical method and software program.

Results: There was significant increase in the BMI, SBP and DBP in the case group. Mean QRS axis, P wave duration changes were statistically significant. Although PR interval; QT interval and QTc, QRS duration and ST segment were increased in cases but were not statistically significant.

Interpretation & Conclusion: Our results suggest that asymptomatic obese individuals have abnormal ECG findings which need a regular check to reduce the chances of its manifestation at a future date.

INTRODUCTION

- Obesity is serious public health problem with established cardiovascular co-morbidities and a major cause of sudden death in developed as well as developing countries currently[XII]. Obesity increases cardiac adverse events via risk factors associated with metabolic syndrome like dyslipidemia, hypertension and glucose intolerance, and also effects from sleep disorders associated with obesity[XVI]. Standard 12-lead ECG remains the most commonly used initial screening test for the noninvasive detection of cardiovascular changes in obesity. According to several studies done previously there are age dependent and BMI related ECG changes. Due to several factors, such as horizontal displacement of the heart by the elevated diaphragm, cardiac hypertrophy, increase in the distance between the heart and the electrodes and coexisting sleep apnea-hypoventilation syndrome, causes changes in ECG in obese patients[V]. Obesity is associated with a wide variety of electrocardiographic (ECG) abnormalities like the leftward axis deviation, changes in the P wave morphology, low QRS voltage, features of left ventricular hypertrophy, T wave flattening, prolonged QT interval duration and QTc interval[IV]. So, the search for improved methods for

electrocardiographic detection of cardiovascular abnormalities in the general population has intensified in recent years . So, this study was done to detect any significant electrocardiographic changes occurring in asymptomatic obese young adults, to study the prevalence of abnormal ECG findings .

MATERIALS AND METHODS

- This was a comparative cross-sectional study was done in which 50 cases were randomly selected who were asymptomatic obese young adults in the age group of 18 – 40 years with BMI ≥ 30 kg/m^2. Age and sex matched 50 healthy individuals with BMI < 25 kg/m^2 were taken as controls from the general population. Body weight (Wt) was measured on portable weighing machine without shoes, and Height (HT) was measured in barefoot using a vertical height scale. BMI was measured as body weight in kilogram divided by the square of the body height in meters. **BMI = Weight (kg) / Height (m^2)[XVII].** Apparently healthy male and female young adults between the age group of 18 – 40 years with BMI ≥ 30 kg/m^2 without any previously diagnosed cardiovascular or pulmonary disease, electrolyte imbalance or recent hospitalization history were taken as case and apparently healthy age and sex matched subjects with BMI < 25 kg/m^2 were taken as conrol. Subjects with BMI 25-30 kg/m^2 and with any cardiac disease and taking any medicines which may affect the cardiac function were excluded from the study. General Physical Examination as well as Systemic Examination was done to rule out the exclusion criteria. Informed and written consent was obtained from all subjects. 12-lead ECG was taken after 10 minutes of rest using **12-lead ECG machine** (RMS Vega 201 TMT machine).Standard 12-lead lectrocardiograms were recorded with the patient in the postprandial state and supine position. Heart rate (HR), P wave duration and amplitude, QRS interval, PR interval, QT interval, QTc interval and QRS axis were measured using standard techniques.Data was analyzed by applying appropriate statistical tests .

RESULTS

- This was a comparative cross-sectional study of electrocardiogram done in 50 asymptomatic obese young adults (BMI > 30 kg/m^2) and 50 non-obese (BMI < 25 kg/m^2) controls and different ECG parameters were evaluated in both the groups. The results are expressed as mean ± standard deviation. The mean age (in years) of 50 cases was 34.3 ± 4.8 and that of 50 controls was 34.8 ± 5.2 (P = 0.68) and was statistically non-significant. Table 1 shows gender wise distribution of both age groups where in both groups there were 30 males and 20 females. **Body Mass Index:** The mean BMI (in kg/m^2) in cases was 34.2 ± 3.0 and in controls was 22.0 ± 3.5 which was significant. (P = 0.00)

Table 1: Distribution of subjects in both age groups

	Case (BMI > 30)	Control (BMI <25)
Male	30	30
Female	20	20

Table 2 shows the vital parameters of both groups in which Pulse rate difference was stastically insignificant in both groups but Systolic and Diastolic Blood Pressure was 126.45±5.4 and 85.2±6.5 mmHg respectively in cases whereas 122.9±45.2 and 80.4±5.7 mmHg respectively in control group and was stastically significantly higher in case group.

Table 2: Vital parameters of both groups

Vital signs	Case (Mean±SD)	Control (Mean±SD)	P value
Pulse Rate/min	78.2±11.0	80.6±11.5	0.14
SBP (mmHg)	126.45±5.4	122.9±45.2	0.01*
DBP (mmHg)	85.2±6.5	80.4±5.7	0.00*

*P value <0.05- Significant

Table 3 shows different ECG parameters in both groups. Mean heart rate were increased in cases but were not statistically significant. P wave duration is longer in obese individuals. PR interval, QRS duration and also QT interval and QTc value were increased in control (obese) group. Mean QRS axis in case was 39.2 ± 33.4 degrees and in control group it was 57.4 ± 33.6 degrees and was statistically significant.

Table 3:Mean ECG parameters of both groups

	Case (Mean±SD)	Control (Mean±SD)	P value
HR (per min)	84.6±12.7	81.8±13.1	0.24
P wave duration (msec)	101.40±12.86	93.45±10.71	0.00*
QRS duration (msec)	99.23±12.34	100.40±12.11	0.82
PR Interval (msec)	148.21±21.90	146.86±16.50	0.12
QT Interval (msec)	365.39±31.40	359.89±22.10	0.36
QTc value (msec)	394.80±20.71	383.72±23.26	0.45
Mean QRS Axis (degrees)	39.2±33.4	57.4±33.6	0.00*

DISCUSSION

- In this present comparative, cross-sectional study, we have compared the electrocardiographic parameters of 50 young obese asymptomatic subjects with that of apparently healthy age and sex matched normal weighing controls. Heart rate and Blood pressure was higher in obese individuals. Higher heart rate and blood pressure may be a cause for the development of metabolic syndrome in obese individuals. Shigetoh et al (2009), in their study, suggested three mechanisms by which the higher sympathetic activity may predispose to many cardiovascular ill effects as well as diabetes mellitus[IX]. Heart rate is influenced by both sympathetic and parasympathetic nerve activities. The higher heart rate in our study may be because of sympathetic over activity. However, longitudinal studies in Tecumseh[VII] and Osaka[X] suggest that sympathetic nerve activation may play a role in the development of obesity.

- **Electrocardiographic Parameters:**

i. **QRS Axis**. Mean QRS axis in case was 39.2±33.4 degrees and in control group it was 57.4±33.6 degrees and was statistically significant which suggests that obese persons are likely to have more leftward axis deviation. This is in accordance with many studies like Frank and his colleagues, who reported leftward mean QRS axis in 1029 obese subjects, which became more pronounced with increasing obesity[V]. The cause

of this axis shift is not known, but may be due to a leftward and more horizontal orientation of the heart attributed to the diaphragmatic pressure from visceral obesity[II,III]. Thus, obesity is associated with a leftward shift in QRS axis, that is directly related to the severity of obesity and is reversible with weight loss.

ii. **P wave duration:** In our study, P wave duration in case was 101.40±12.86 milliseconds and in controls was 93.45±10.71milliseconds and was statistically significant. So, it can be said that P wave duration is longer in obese individuals. Obese patients have 50% risk of atrial fibrillation and flutter[XVII].Left atrial enlargement leads to atrial fibrillation which contributes to increase in the P wave duration and amplitude. In obese patients, left atrial enlargement and electrical instability may be caused by elevated plasma volume, ventricular diastolic dysfunction and enhanced neurohormonal activity.Also, the autonomic control of the heart is abnormal in obese subjects due to prevalence of sympathetic over parasympathetic limb of the autonomic balance. This affects intraatrial and interatrial conduction times and leave them prone to develop atrial arrhythmias, such as atrial fibrillation[VIII].

iii. **QRS duration:** QRS duration in case and in controls was 99.23±12.34 milliseconds, and 100.40±12.11 milliseconds respectively which shows higher value in non-obese but it is non-significant. This is in contrast to some other studies like the studies of Frank and his colleagues in 1029 obese subjects suggesting progressive QRS widening in obese persons[V]. A prolongation of the QRS duration (> 0.10 s) was associated with lower left ventricular ejection fraction and larger end-systolic and end-diastolic volumes and thus is a specific indicator of left ventricular dysfunction[XI].

iv. **PR interval:** PR interval was 148.21±21.90 milliseconds in cases and 146.86±16.50 milliseconds in controls and was not significant. So, higher PR Interval was noted in obese persons which is in accordance with the study done by Frank et al[V] and Alpert et al[XI], but they noted progressive increase in PR interval duration with increasing severity of obesity and were independent of age, sex and blood pressure. A 10% increase in obesity was manifested in an increase in PR interval of 0.5 ms. Pipberger et al[XIII] also noted slight increases in the PR intervals with increasing weight.

v. **QT interval:** Mean QT interval was 365.39±31.40 milliseconds in cases and 359.89±22.10 milliseconds in controls, and was not significant. Mean QTc was 394.80±20.71 milliseconds in cases and 383.72±23.26 milliseconds in controls, and was also not significant but was prolonged (> 0.45 seconds) in 5% of cases. There is increasing evidence suggesting that obesity, particularly central obesity is associated with delayed ventricular repolarization as designated by prolongation of the corrected QT interval or QT dispersion[VI,XV]. Several mechanisms have been suggested for QT prolongation: autonomic system imbalance and autonomic neuropathy[XIX], mutations of genes affecting cardiac ion channels involved in cardiac repolarization[XIV], nonconducting scar tissue resulting from myocardial infarction, high glucose level, elevated insulin level, hypokalemia, obesity and ventricular hypertrophy. A small improvement of the QTc was apparent only when the correction was made using the Bazett formula.

vi. **ST segment:** ST segment was isoelectric in 90% (n = 45) cases and 100% (n = 50) controls but was abnormal in 10% (n =5) cases. P value was >0.05 and was statistically non significant. Eisenstein et al[III] found ST segment abnormalities in 10.6% patients and suggested that they were nonspecific repolarization changes and did not correlate with the degree of obesity. In a study of 100 normotensive young morbidly obese patients and 100 young normotensive normal controls, ST segment depression with or without T wave inversion occurred rarely[I].

CONCLUSION:

- This was a comparative cross-sectional study done in the general population of Ahmedabad district where 50 obese persons with BMI>30 kg/m^2 and 50 normal persons with BMI<25kg/m^2. But in this study sample size was too small and also we did not correlate the age, sex and BMI with the ECG parameters. However from the data gathered, it is concluded that apparently healthy obese individuals may have higher anthropometric values and abnormal ECG findings. Hence, a regular check on these parameters will help them in reducing the chances of its manifestation at a future date.

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12

ANALYSIS OF BODY DONATION IN THE SAURASHTRA REGION: A RETROSPECTIVE STUDY

Sharma V*, Zaveri KK, Patel MM**, Singel TC***, Patel RK**, Patel RM**, Chudasama JA****

*SRMS Institute of medical sciences, Bareilly India
***M.P.Shah Government Medical College, Jamnagar, Gujarat* India
**** B. J Medical College Ahmedabad* India

Abstract:
Introduction: Body donation is defined as the act of giving one's own body after death for medical research and education. As the gradual advancement in medical field and increasing research requirement of cadavers is increasing and so is the need for voluntary body donation.
Material method: This was a retrospective study, done by collection of data through the proforma which was obtained, at the time of body donation from the relatives and known of deceased from anatomy department of our institute, for the year 2010-2014.
Result: Average number of bodies donated per year was 19-20. The pattern of donation is variable from year to year. Most of donors were male and belonged to age group > 50 years, were literate and belonged to urban settings.
Conclusion: The saurashtra region population is very well aware of the idea of body donation and has set an example for rest of mankind through this noble act.

Introduction:

Body donation is defined as an informed and free act of giving one's own whole body for medical and education research. (VII)

Delmas (2001) stated that donation is a clear "will" made by the persons free and informed. Donation is most often by self-sacrifices, conferring life on another and it is a gift for better tomorrow. (V)

A sound knowledge of anatomy is essential from the beginning of a medical education and, knowledge obtained through dissection of human body is indispensable. (I)

Anatomy act -

In India Anatomy Act was enacted in 1949. It has been uniformly adopted in all states of India. This act , rectified by various states in India provides for supply of unclaimed bodies to medical and teaching institutes for the purpose of anatomical dissection and research. [V]

Anatomy act is a state act propagated by the legislature and published in State Government Gazette. This act regulates the use of dead bodies for medical purposes. [III]

Dissection of human cadavers provides the students with an emotional and intellectual approach towards human body. Most of the students today also think that dissection is indispensable and gives the best method for study of anatomy and disagree with the idea of replacing cadaver dissection with the computer-based program. [IV] [V]

Now- a- days with the upcoming advancements in the medical field, cadavers play an important tool for the clinicians to practice the various new techniques on them, so that they can apply the same with confidence over their patients.

Most of medical and dental students are in favor of organ donation; however less than half consider donating their own body for educational purposes at this point in their life.

Despite of the importance of body donation for medical education and the advancement of medical science, cadaver donation remains sub-optimal worldwide.

Aims: the aim of the present study was **t**o analyze the pattern of body donation in saurashtra region.

Material and method: it was a retrospective study, done by the collection of data through the proforma, that were filled during the year 2010-14 (five year data).

The voluntary donors and the relatives of the deceased who came to the institute for whole body donation were required to fill a 'dehdan form' and they provided with a 'sankalp patra'

After the donation of body, 'abhar patra' was issued to the relatives to express the gratitude from the institute and students for their noble act.

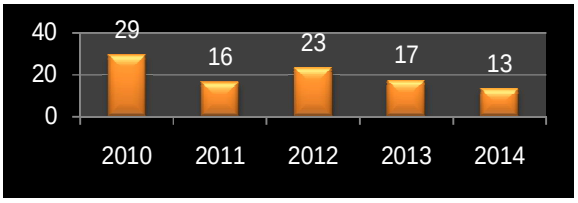
The ID proof of the deceased, death certificate issued by a registered medical practitioner are collected from the relatives who bring the dead body.

The proforma used in the study were filled at the time of body donation with the help of information provided by the nearest relative or known person of the deceased.

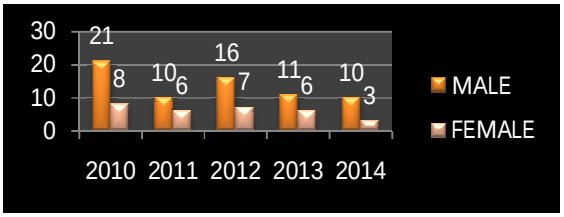
Information was obtained regarding the date and time of death, personal information of deceased and the nearest relative bringing body.

Results:

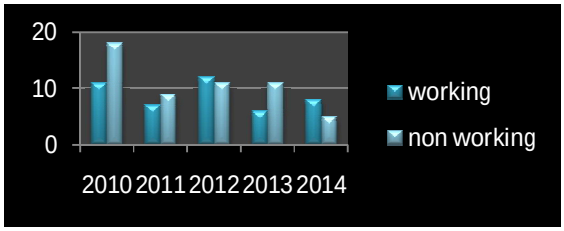
1. Number of donors



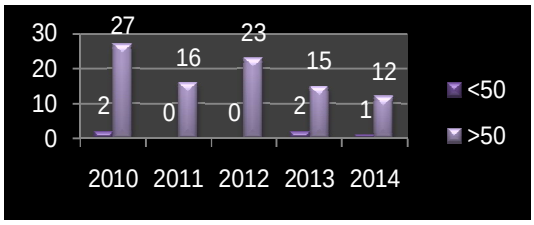
2. number of males and females



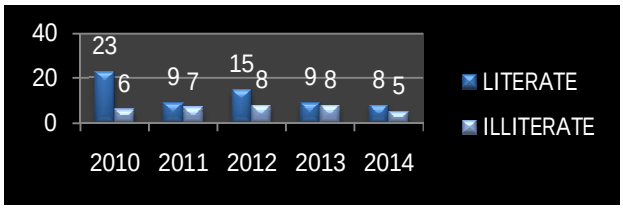
3. number of working and non-working population at the time of death



4. Age group of donors:



5. Literacy trend among the donors:



6. Statistical analysis of the above data:

x	TOTAL	P value
TOTAL NO.	98	
LITERATE	64	Statistically significant P<0.05
ILLITERATE	34	
MALE	68	Statistically highly significant P<0.005
FEMALE	30	
<50	5	Statistically very highly significant P<0.0001
>50	93	
WORKING	44	Statistically not significant

NON WORKING	54	P>0.05

Discussion: From the results of the present study, it was concluded that, out of 19-20 average bodies per year donated to our institute, most of them were male and belonged to age group of greater than 50 years. It was proved by the data that literate population favors body donation than illiterate one.

- Our results were found in accordance of studies done by Amanrao BP et al (2012) [II] who found the similar results in North Maharashtra population.
- Ranjan et al (2014)[VI] did a study of awareness regarding voluntary body donation in population of Ujjain region of MP and derived the similar conclusion.

The reasons for the above observation could be, the better exposure of urban and literate population of country to body donation awareness programmes through mass media communication.

The higher age group in the donated bodies is because, most commonly deaths in these age group are from natural causes (especially above 70 years) , and they have a higher mortality rate.

Males out-number females in body donation because the life expectancy in males is lower as compared to females and females in our country are less aware (due to illiteracy) and feel cultural bondage.

Conclusion: It was concluded from the present analysis that the number dead bodies obtained by our institute through voluntary body donation is sufficient to meet the requirements for medical education. The population of saurashtra region in Gujarat state is very well aware of the idea of body donation, which is a very appreciable act. They had set as an example for the people of other parts of our country and world, where due lack of voluntary body donation, medical institutes are running short of cadavers needed for medical education.

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13

IMPACT OF PEER ASSISTED LEARNING ON YEAR 1 MEDICAL STUDENTS

PEER ASSISTED LEARNING MODULE AS AN TEACHING LEARNING METHOD

Dr Janardan V Bhatt prof and Head ,AMCMET medical college .LG Hospital ,Maninagar Ahmedabad pin 380008

Abstract:

Back ground

Medical council of India recommends improving quality of training of IMGs by expanding the role of doctors/IMGs from Clinician to Communicator, Leadership and member of the health care team. MCI also recommends improving quality of training by Vertical medical Integration , and expects Doctor as health educator as a core competency amongst the IMGs. Considering all these aspects of vision 2015 we have assessed peer-assisted learning teaching method and compared with traditional faculty based method of medical education. The modern Learning pedagogy is now well supported by evidences to make education system active and student-centered. senior students give and assist their juniors on pre assigned topics especially practical clinical teaching ., lead and provide support to their junior classmates in the form of tutoring. The module is attractive to medical colleges faced with a growing number of learners but a static or rather decreasing faculty size.

Aims and objectives:

1] Introduce and evaluate peer assisted learning as T&L method in first year medical students

2] To compare the impact of this method on learners with traditional method of learning

3] To Get the feedback of PAL

Method:

IEC approval was taken

Study design and type: experimental interventional comparative analysis

Study setting: Dept of physiology ,AMCMET medical college ,Ahmedabad

Study population :Ist year under graduate medical students Participants:

Inclusion criteria: All Ist year medical student willing to participate in study

Intervention:

PAL and traditional learning exposure assessed by OSPE tests

Sample size: n1 =50 +n2= 50 .Total 100

Assessment: Knowledge gain By post intervention tests : OSPE tests

Feedback: Perception of PAL by linkers scale

Statistical analysis: Mean and SD of results of post intervention tests of two experiment 1] Teaching blood pressure measurement E1 and 2] Teaching clinical examination of pulse.

Total score in each design 20 marks assessed by OSPE. P value measured. P value <0.05 was considered statistically significant other wise statistically insignificant

Feedback was assessed by Likert scale

Results:

The study documented the fact that the result [Score achieved] were similar and statistically insignificant amongst junior students whether by learned PAL module or faculty assisted Learning module

Studies have shown that peer assisted teaching has received a positive feedback **from both the peer teacher , the learners and faculties as taken by linker score .In this setting OSPE scores were comparatively similar whether they have faculty instructors or peer teachers(Statistically insignificant P>0.5).**

The study demonstrates: a) PAL methods **learning scores as measured by OSPE test was statistically similar …….**(p= 0.692984 in E1 and P =0.633656 E2 set up]

Conclusion:

These findings support that **PAL module is as effective as traditional Module.**

The study demonstrates: a) PAL methods **learning scores as measured by OSPE test was statistically similar.** Teaching skills should be part of the training of all medical graduates [MG], and it should begin at the medical-student level. By such intervention medical students may become more effective communicators and educator in context to future physician-patient interaction[vision 2015] .Students become better learners and as students may be future residents and faculty members , PAL module help them to develop knowledge, attitudes ,skills for medical education. Peer Assisted Learning (PAL) could be an acceptable and beneficial educational strategy to organize the programs by which students can tutor or teach their peers.

We received positive responses from of medical students about their experience of vertical integration. Year 1 students reported that second year students provided guidance and reassurance. Year 2 students reported that the role helped them to improve their own understanding, communication and confidence. Though to find motivated students to teach in group to junior peers is also difficult unless it is made a part of education objectives by

institution. Medical colleges should form a PAL as part of educational objectives including teaching methodology if objectives of MCI Vision 2015 i.e. improving quality of training of IMGSs by expanding the role of doctors/IMGs from Clinician to Communicator, Leadership and member of the health care team is to be fulfilled .And thus modern Learning pedagogy ,to make education system active and student-centered is also fulfilled .

Abbreviation: IMG= Indian medical graduate, PAL= Peer assisted learning. T&L=Teaching and learning, OSPE= Objective structured practical examination

Key words; Peer assisted learning, medical education, Teaching and learning

Introduction:

Medical council of India recommends improving quality of training of IMGs by expanding the role of doctors/IMGs from Clinician to Communicator, Leadership and member of the health care team. MCI also recommends improving quality of training by Vertical medical Integration , and expects Doctor as health educator as a core competency amongst the IMGs. Considering all these aspects of vision 2015 we have assessed peer-assisted learning teaching method and compared with traditional faculty based method of medical education. The modern Learning pedagogy is now well supported by evidences to make education system active and student-centered. Student centered activities have been linked to more effective learning because need to actively engage with the material in order to participate.

Learning by teaching is key element in peer-assisted learning. In this context there's a lot of evidence to suggest that peer-assisted learning works really well. Peer assisted learning is not a single, undifferentiated educational strategy. It encompasses a broad sweep of activities. Peer-based learning is both cost-effective and versatile because it is customized to the group involved, utilizes their own experience, and addresses real-world issues and challenges. In Peer assisted learning [PAL] students act as teachers and widely used in many universities and increasingly in medical schools. The module is attractive to medical colleges which faced with a growing number of learners but a static or rather decreasing faculty size. Peer assisted learning [PAL] is a form of vertical educational integration. Here senior students give and assist their juniors on pre assigned topics especially practical clinical teaching .They lead and provide support to their junior classmates in the form of tutoring. The module is attractive to medical colleges which faced a growing number of learners but a static or rather decreasing faculty size.

Aims and objectives:

1] Introduce and evaluate peer assisted learning as T&L method in first year medical students

2] To compare the impact of this method on learners with traditional method of learning

3] To Get the feedback of the PAL module

Methods: IEC approval was taken.

Study design and type: experimental interventional comparative analysis

Study setting: Dept of physiology ,AMCMET medical college ,Ahmedabad

Study population : Ist year under graduate medical students Participants:

Inclusion criteria: all Ist year medical student willing participate in study

Intervention:

PAL and traditional learning exposure assessed by OSPE tests

Sample size: n1 =50 +n2= 50 .Total 100

Assessment: Knowledge gain By post intervention tests : OSPE tests

Feedback: Perception of effectiveness of PAL by linkers scale by students

Statistical analysis: Mean and SD of results of post intervention tests of two experiment 1] Teaching blood pressure measure E1 and 2] Teaching clinical examination of pulse.

Total score in each design 20 marks and T and P value measured. value <0.05 was considered statistically significant other wise statistically insignificant

Feedback by Likert test

Procedure:

In Peer assisted learning [PAL] teaching method [PAL] senior medical students were given optional teaching module to take. It worked in two phases. All senior medical students were invited to participate in exploring the vertical educational integration. In the first week an intense training is given about clinical –practical topic to be taught. They taught the basics of how to structure a lesson plan and ask effective questions, and allow practicing their skills. IN PAL , second week and onward senior medical students who are just about to start working in laboratory class set up. The idea is for the senior medical students to teach the junior medical students what they should expect on the ward i.e. measuring [E1] blood pressure ,and perform clinical examination of pulse [E2]. The PAL module, senior students generally teach between eight to ten students per session. In this experimental set up ,two practical session were planned .In PAL module the first session was observed once so to see their skills . In PAL module We undertook study of how medical students are impacted by being peer teachers and how having a peer teacher impacts learners. Two clinical practical session were given by peer students and assessed by OSPE. The scores were compared with the same session given by regular Faculties. The present study conducted in AMCMET medical college to examine and compare the effects of two educational methods: Peer Assisted Learning [PAL module] and teaching by regular faculty members [Regular Module]on year 1 students. The learning and retention scores we compared . Paired t-test were used for assessing effectiveness of educational methods.

Statistical analysis :Students T test

Ethics

Ethical approval for this study was obtained from authority

Complicit of interest: Nil

Results

The study documented the fact that the result [Score achieved] were similar and statistically insignificant amongst junior students whether by learned PAL module or faculty assisted Learning module .Studies have shown that peer assisted teaching has received a positive feedback **from both the peer teacher , the learners and faculties as taken by linker score. In this setting OSPE scores were comparatively similar whether they have faculty instructors or peer teachers(Statistically insignificant P>0.5).**

The study demonstrates: a) PAL methods **learning scores as measured by OSPE test was statistically similar …….**(p= 0.692984 in E1 and P =0.633656 E2 set up]

These findings support that **PAL module is as effective as traditional Module.**

Experiment 1

Experiment	No of students	Mean	SDDEV	P value
Post PAL	**50**	12.24	3.190987	
Post traditional	**50**	12.44	2.532725	
				0.692984 **NS >0.5**

Experiment 2

Experiment	No of students	Mean	SDDEV	P value
Post PAL	**50**	11.4	2.747912	
Post traditional	**50**	12.2	2.77746	
				0.633656 **NS >0.5**

Discussion:

The study documented the fact that the result [Score achieved] were similar and statistically insignificant amongst junior students whether by learned PAL module or faculty assisted Learning module

Studies have shown that peer assisted teaching has received a positive feedback **from both the peer teacher , the learners and faculties as taken by linker score. In this setting OSPE scores were comparatively similar whether they have faculty instructors or peer teachers(Statistically insignificant P>0.5).**

The study demonstrates: a) PAL methods **learning scores as measured by OSPE test was statistically similar …….**(p= 0.692984 in E1 and P =0.633656 E2 set up].In the paper "Why medical students should learn how to teach?" Dandavino et al concluded that teaching skills should be part of the training of all medical graduates [MG], and it should begin at the medical-student level. The reasons they proposed are (1) medical students may become more effective communicators and educator in context to future physician-patient interaction; (2) students become better learners. 3]medical students are future residents and faculty members and with PAL module help them to develop students' knowledge, skills, and attitudes in education may further stimulate these aspects.

Studies on medical education suggest that Peer Assisted Learning (PAL) could be an acceptable and beneficial educational strategy to organize the programs by which students can tutor or teach their peers.

We received positive responses of medical students about their experience of vertical integration. Year 1 students reported that second year students provided guidance and reassurance. Year 2 students reported that the role helped them to improve their own understanding, communication and confidence.

Though Students find peer learning a positive experience, it is not easy to implement as senior medical students have their own educational schedules to follow and so they have to follow time management schedule .To find motivated students to teach in group to junior peers is also difficult unless it is made a part of education objectives by institution. Some seniors are arrogant and may not ready to work with first years . Though the attitude is entirely counterproductive to the aims of vertical integration. The benefit to younger students is that they feel more comfortable asking what they perceive to be 'stupid' questions. The 'hidden curriculum' – that is, knowledge that's not part of the official syllabus, things like how to please, and behavior that might upset the professors. It is been felt that students are more comfortable asking questions to peer students. Though there is also a fear of inaccurate information Transmission .

LIMITATIONS.

This study had several limitations. It was a small study with 50 Jr students and 5 peer students. The study Can be expanded to cover all students .There is genuine difficulty to find and motivate students to participate as teacher in PAL module.

Conclusion:

The study demonstrates: a) PAL methods **learning scores as measured by OSPE test was statistically similar.** Teaching skills should be part of the training of all medical

graduates [MG], and it should begin at the medical-student level. By such intervention medical students may become more effective communicators and educator in context to future physician-patient interaction[vision 2015] .Students become better learners and as students may be future residents and faculty members , PAL module help them to develop knowledge, attitudes ,skills for medical education. Peer Assisted Learning (PAL) could be an acceptable and beneficial educational strategy to organize the programs by which students can tutor or teach their peers.

We received positive/supporting responses from medical students about their experience of vertical integration. Year 1 students reported that second year students provided guidance and reassurance. Year 2 students reported that the role helped them to improve their own understanding, communication and confidence. Though to find motivated students to teach in group to junior peers is also difficult unless it is made a part of education objectives by institution. Medical colleges should form a PAL as part of educational objectives including teaching methodology if objectives of MCI Vision 2015 i.e. improving quality of training of IMGs by expanding the role of doctors/IMGs from Clinician to Communicator, Leadership and member of the health care team is to be fulfilled .And thus modern Learning pedagogy,to make education system active and student-centered is also fulfilled .

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14

EMG study in cases of maturity onset diabetes neuropathy

Dr Jinal Pandya*, Dr. Neeraj Mahajan** Dr Urvashi Kapadia**

***Resident, **Associate Professor, *** Assistant Professor, Department of Physiology, NHLMMC, Ahmedabad**

Abstract

Aims and objectives: To determine the association between types of clinical presentation and severity of neuropathy in NIIDM by electromyography

Methods: The study was carried out at private EMG center at Ahmedabad in 2012. Total randomly selected 52 cases male (39), female (13) symptomatic cases of NIDDM were

included in study. We included known cases of NIDDM aged 32-88 excluding IDDM and asymptomatic NIDDM patient. The standard Needle EMG was used for study.

Results: From our study it was found that maximum (40.3%) cases seen with 6-10 years duration, 57.6% cases have BMI<18.5, 61.1% have >5'7" height, 80.7% don't have positive family history. Associated diseases are HT (23%), CAD (17.3%). Presenting symptoms are tingling-numbness (73%), difficulty in walking (55.7%) Presenting signs are reduced or absent DTR (84.6%) and blunting of sensation (75%) All four limb demyelinating neuropathy seen in 76.9% and LL>UL in other 11.5% cases. All four limb axonal degeneration seen in 11.5% cases while exclusively lower limb is involved in 23% cases

Conclusion: From our study we concluded that Factors affecting are old age (>55) male gender, underweight (BMI<18.5), height>5'7", duration>5 years. Further studies for associated diseases are recommended. Common symptoms are tingling numbness and signs are blunting of sensations. Common type (>75%) of neuropathy is demyelinating distal symmetrical.

Introduction:

Electromyography (EMG) is a technique for evaluating and recording the electrical activity produced by skeletal muscles. The presence of abnormal spontaneous activity (positive sharp waves and fibrillation potentials) suggests active denervation. Analysis of motor unit potentials (MUAPs) on needle EMG helps determine the acuity and severity of nerve injury. Long duration, large amplitude and polyphasic motor unit potentials are seen in chronic axonal neuropathies, due to uninjured motor axons innervating denervated muscle fibers [(1)]. EMG is used to diagnose neuropathies, myopathies and diseases of neuromuscular junction. EMG can not only help localize nerve lesions, but can also determine the chronicity of the neuropathic process. Electromyography is one of the important procedures to diagnosis and assessment of one of the commonest complication of diabetes, diabetic neuropathy. The lifetime incidence of neuropathy is approximately 45% for patients with type 2 diabetes mellitus and 54% to 59% for patients with type 1 diabetes mellitus [(2)] Studies of nerve conduction tests and electromyography performed at the time of diabetes mellitus diagnosis demonstrate that neuropathy is already present in patients when the neuropathy is still subclinical, and these tests show improvement with intensive control of glycemia [(3)] .among the various neuropathies diabetic neuropathy is a treatable condition, and hence if detected early, the proper treatment can be instituted in the early stages can give rise to good outcome. [(4)]

Aims and objectives:

1. To study the clinical presentation of patients of diabetic neuropathy in non insulin dependent diabetes mellitus (NIDDM)

2. To diagnose and assess types of diabetic neuropathy in NIDDM patients by electromyography.

Material and methods:

The study was carried out at private EMG center at Ahmedabad in 2012-13. Total randomly selected 52 cases male (39), female (13) symptomatic cases aged 32-38 of NIDDM were included in study. We included known cases of NIDDM aged 32-88 excluding IDDM and asymptomatic NIDDM patient. Symptomatic NIDDM patients were included and insulin dependent diabetes mellitus (IDDM) patients and non-symptomatic patients of NIDDM were excluded. This study was cross sectional. The standard Needle EMG was used for study. The decision of which muscle should be needled is taken on the bases of nerve conduction velocity (NCV) test. The muscle was examine in two phases1) when the muscle is at rest 2) when the muscle is put into voluntary contraction.

Result: Table 1.0 distribution of cases according to symptoms

Sr.no	Symptoms	Total cases	% of cases
1	Tingling-numbness	38	73
2	Difficult in walking	29	55.7
3	Difficult in holding objects	17	32.6
4	Ataxia	4	7.6
5	Others	3	5.7

Patients have different symptoms. 73% presented with tingling and numbness. 55.7% have difficulty in walking. 32.6% have difficulty in holding objects. 7.6% have ataxia and 5.7% have other symptoms like chest pain and weakness

Table 2.0 distribution of cases according to signs

Sr.no	Signs	Total cases	% of cases
1	DTR↓ or absent	44	84.6
2	All four limbs	19	36.5
3	Sensory blunting	39	75
4	Muscle power↓	12	23.07
5	Others	4	7.6

On clinical examination 84.6% showed reduced or absent deep tendon reflexes, 75% of cases sensory examination showed blunting of sensation. There was reduction in power in 23.67%. DTR.

Table 3.0 distribution of cases according to EMG study

Sr.no	Limb involved	Demyelinating		Axonal		Others	
		Cases	%	Cases	%	Cases	%
1	UL & LL	40	76.9	6	11.5	6	11.5
2	UL	2	3.8	3	5.7		
3	LL	1	1.9	12	23		
4	UL>LL	2	3.8				
5	LL>UL	6	11.5				

EMG examination showed that 76.9% of cases have all four limb demyelinating type of neuropathy. Axonal degeneration in both upper limb and both lower limb was in 11.5%. 3.8% have pure upper limb while 1.9% have pure lower limb involvement.

From our study it was found that 36.50% cases were >60 years, 28.80% cases were between 51-60, 19.20% cases were between 41-50 and 15.30% cases between 30-40. 75% were male and 25% were female. According to BMI of patients 57.6% cases have BMI <18.5, 26.8% cases have BMI between 18.5-22.9 and 15.3% cases have BMI >22.9.61.4% cases have height more than 5'7" and rest 38.6% were of 5'6" or less height. From this study it was quite clear that neuropathy is seen in those patients of diabetes who were quite tall. 80.7% cases do not have family history of diabetes. 40.3% cases have 5-10 years duration of diabetes while 28.8% cases have <5, 13.4% cases have 11-15 and rest 11.5% cases have >16 years of duration of diabetes. Diseases associated with diabetes are hypertension 23%, CAD 17.3%, obesity 15.3% and others 11.5%. Smoking associated in 21.1% cases.

Discussion and Conclusion:

Majority of the cases lies in the later age group so it's common over 50 years of age. Studies from Sri Lanka show a high prevalence of neuropathy at the time of diagnosis and a significantly higher prevalence with advancing age which is similar to our study. [5]Males are more affected then female but there is no definite documentation to show that males are more affected it may be just incidental so further study is recommended. It is known fact that diabetes per se is seen in obese persons but neuropathy patients are lean and thin persons. [6] One of the known factors to predispose to neuropathy is nutritional deficiency. From our study it is quite evident that duration of DM is more than 5 years in more than 65% of cases. Studies from Sri Lanka show a high prevalence of neuropathy at the time of diagnosis (9.8%) and a significantly higher prevalence with duration of disease. [5] The pattern of inheritance and the environmental factors differ in IDDM and NIDDM. HT and CAD are the most common associated diseases and smoking predisposes to neuropathy. It is a known fact that smoking and alcohol consumption predispose to neuropathy. [6] Commonest symptoms are tingling and numbness in feet and lower limbs. Common signs associated with diabetic neuropathy are sensory blunting and decrease DTR. [7] Both axonal degeneration and segmental demyelination can occur in diabetic neuropathy. Current information supports the hypothesis that diabetes can primary affect both the axon and Schwann cell in the development of polyneuropathy. The disease can produce a distal, length dependent axonopathy and also segmental demyelination. Primary nerve dysfunction in diabetic polyneuropathy is produced by demyelination. Axonal dysfunction parallels the severity of demyelinating process. [8]

Conclusion:

EMG examination reveals that majority of diabetic neuropathy patients (more than 75% of cases) have a demyelinating type of neuropathy, while remaining show axonal type of degeneration. This is one of the few neuropathies which if treated early, as reversible.

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15
Medical technology
Wearable medical devices in medical sciences

Wearable medical devices are worn like clothes or accessories i.e. wrist watches, bracelets ,glasses, chain .. ,.After the huge growth of smart phones ,there is future for development of Wearable medical and health devices .One such wearable device is smart wrist watch Even and above showing time the smart watches are able to measure pulse rate ,body Temperature... A similar wearable devices have developed to continuous recording of pulse, respiration rate and depth ,EEG and EEG for evaluation of arrhythmia ,sleep apnea and epilepsies .The most important common element here is it can be wearied and record the physiological parameter without much discomfort or even some time without knowledge of patients. . **Wearable medical devices has been also used to** educate and motivate individuals toward better habits and better health. The gap between recording information and changing behavior is substantial. while these devices are increasing in popularity and very soon we will know the outcome also .Such devices can objectively assess the eating behavior ,exercise performed , calorie consumed .A Pedometer is such very popular device which measure distance one walked or run or consumed energy. Thus **Wearable medical devices** provide motivation and feedback to patient about their medical and health behavior .Large number of bio feed devices are on horizon to motivate and modify the human behavior.

Many devices and apps are on app store with all pros and cons ,but main issue are not cost but maintaining sustain use. Person start using such health related devices for beginning but later on dropped due to a very common cause i.e. forget to recharge . So the smart phone based devices have more compliance as many people prefer to wear the smart phone most of the time. .Large number of smart phone based medical educational apps also available on app stores i.e. medical

dictionaries ,medical procedures, medical data interpretation, mindscapes, medical news ,medical drug dose calculators, medical abbreviation, medical laboratory values and technology information ,surgical procedures, drug doses and drug interaction and side effects ,medical prognosis, medical images ,blood sugar, blood pressure, body temperature ,pulse recording and so on. A similar one app have actually found more useful in patient adherence to drug regimes especially amongst psychiatric patients or patients who are on anti tuberculosis drugs and many more.

In medical education the Google glass have very promising future. In one instant ,a medical teacher demonstrated a clinical case report and case images ,videos ,history ,finding and laboratory pictures were simultaneously visualized by participating students on their smart phones in class room set up and then the whole case was discussed interactively .The most challenging and future Wearable devices in medical education is Holovin lenses created by Microsoft in joint efforts **with Case Western Reserve University** .This is probably going to prove the novel next generation teaching aid to medical students ,teachers and doctors. Holovin lenses look like holography but this is not holograph .The image are created in brain of viewer when viewer wears the lenses . Holovin lenses are sleek, flashy headset with transparent lenses. one can see the world around , but when wearied suddenly that world is transformed with 3D objects floating in mid air, virtual screens on the wall and your living room covered in virtual characters running amok. HoloLens measure up reality-altering gadgets. It is not actually producing 3D images that everyone can see; Microsoft's holovin lenses creates images only the wearer can see. Microsoft envisions the HoloLens as both a personal and a workplace device. person sees the wonders of a one's' own living world simultaneously . In words of Dr Neil Mehta a famous cardiologist of USA told in his lecture at medical college .conference that all one need is window 10 to create simulations with the HoloLens. Augmented reality is view of the physical real life world whose elements are augmented or enhanced by computer generated sensory input such as sound graphics, video or GPS data. A reviewer can able to separate the real world from the virtual world when using augmented reality with holovin lenses. Microsoft holovin is a mixed reality device that allows one to 3 D holograms of objects in real life settings. With holovin lens handset doctors can see under a patient ' skin all the detail structures and functions i.e. aortic valve. Medical students are using headsets to learn more about human body. In one example, the wearer is shown making a virtual click before a skeleton is separated from its vascular system and muscles from the body .

In various surveys from many apps on smartphones are available to increase medication adherence. Wearable-electronics are gaining widespread use as enabling technologies, monitoring human physical activity and behavior as part of connected health infrastructures. Attention to human factors and comfort of these devices can greatly positively influence user experience, with a subsequently higher likelihood of user acceptance and lower levels of device rejection. In making the wearable devices a human factors and comfort assessment is taken care for adherence. Thus such wearable medical gadgets will going to play very valuable part in medical sciences.

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J Pers Med. 2015 Dec 16;5(4):487-508. doi: 10.3390/jpm5040487 **Multi-Stage Human Factors and Comfort Assessment of Instrumented Insoles Designed for Use in a Connected Health Infrastructure.**2 Mitesh S. Patel, MD, MBA, MS[1]; David A. Asch, MD, MBA[1]; Kevin G. Volpp, MD, PhD[1] Wearable Devices as Facilitators, Not Drivers, of Health Behavior Change *JAMA.* 2015;313(5):459-460. doi:10.1001/jama.2014.14781.

3 MNS.com Microsoft website :

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4th INTEGRATED BASIC MEDICAL SCIENCES QUIZ AHMEDABAD : 19th March 2016 at 10 AM to 1-00 PM

It gives us immense pleasure to invite students and faculty for participation at the 4th INTEGRATED BASIC MEDICAL SCIENCES QUIZ to be held on - 19th March 2016 at 10 AM to 1-00 AM organized jointly with **AMCMET medical college ,LG Hospital Maninagar Ahmedabad pin 380008**

Purpose of organizing INTEGRATED BASIC MEDICAL SCIENCES QUIZ:

1 To provide academic feedback, growth, encourage integrated learning and teaching and share knowledge of development various branches of basic medical sciences amongst the students and faculties.
2. To provide and unique background to develop competition spirit, teamwork, leadership and co operation amongst students and doctors.

MCQ type Quiz will be held on 17th March - 2016 at 10 AM to 1-00 PM

Eligibility for Participation :Any medical, dental, physiotherapy college student who has completed at least one semester in medical institute or MBBS, BDS,

interns, Post graduate students willing to gain and test their Basic sciences knowledge. This competition is open for registration on first-cum-first basis.

Subjects to be covered: Integrated basic sciences Physiology, Anatomy, Biochemistry, Genetics, immunology, Pharmacology, statistics ,Epidemiology

Team will be notified for their selection into based on the primary screening process. **For Program Details and Registration form, please contact us at the e-mail : forum99in@gmail.com,or soham2007@yahoo.com**

All the participants will be awarded participation certificates and mementoes. Winner team will be awarded big prized including smart Phone, trophy and winning certificates.

Registration Deadlines: 15th of February 2016

Well, we are looking forward for your spirit of competition to participate in this academic Garba.

Sincere Regards,

,Prof and Head ,AMCMET medical college ,LG Hospital , Maninagar ,Ahmedabad pin 380008

For details visit regularly www.themedicalacademy.in

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