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Editorials

Mirror Neurons:

Dr Janardan Bhatt

Essentially, *mirror neurons* respond to the actions that we observe in others. These "*mirror neurons*" were hypothesized as a part of the brain's motor system. Many questions can

be answered by these *mirror neurons* i.e. Why we so deeply feel bad and pain and involved emotionally when we see people in agony and distress? How is it that we can read other people's body language and faces as well? Why we show empathy? How we learn language by imitation? A special circuit is found in brain that helps us the ability to connect with one another. This is the brain's mechanism of translating what we see so we can relate to the world and understand others. This a very important step in social evolution and socialization of human being and so we call a man is a social animal. This neuronal brain circuit is called Mirror neuron systems or mirror neurons. Mirror neurons are neurons which fire while watching some one perform an action and observing an event. They provide an internal neuronal representation of actions and intentions of others. A mirror neurons fires both when a man/animal acts and when the animal observes the same action performed by another. Thus, the neuron mirrors the behavior of the other, as though the observer were itself acting. From the evolutionary point of view, these neurons are deeply involved in skill learning, implicit learning, emotional attunement, empathy and social behavior. Mirror neurons found by Giacomo Rizzolatti in 1992 when he placed electrode in motor cortex of the monkey. Actually he wanted to study the neurons specialized for the control of hand actions i.e. grasping, when monkey observes and perform similar action performed by other. And thus Mirror neurons were discovered. Similar sets of neurons were also observed in human being by fMRI Study of brain. They showed that regional activation in fMRI when witnessing an action. The same neurons fired when one observe an emotion on faces. It suggests that mirror neurons send signals to the limbic and emotional systems in the brain. This in turn allows us to empathize. Humans instinctively respond to emotion seen in other's faces and bodies.

Deeper in our brain, we are meant to be together, and socially interact.

Researches done on primates and humans with the help of TMS, PET and fMR found convincing evidences that mirror neurons fire during goal-directed actions, observation of similar actions and even when observed action is partly hidden and brain try to complete with mirror neurons. It follows that the Mirror Neuron System codes the intention associated with the observed action of others. It is further hypothesized that the Mirror Neuron System is vital for the understanding of emotional states in others (which are mostly communicated by facial expression). In human being, the Broca's area plays an important role in imitation and language learning in early life by Mirror Neuron System. Mirror neurons are more active during "mirror"-imitation than in anatomically correct imitation. Mirror Neuron System interacts with motor areas and the dorsolateral prefrontal cortex during imitative learning.

Anatomically Mirror neurons are presumed to be present in F5 area and orbito frontal areas in prefrontal lobe, and act via amygdala and insula. Mirror Neurons of these areas codes abstract aspects of an action and intention. Mirror neuron system activity in the human of area F5—the pars opercularis in the inferior frontal gyrus—has been consistently reported during imitation, action observation, and intention understanding as observed by Rizzolatti. Neurons located in the ventral premotor cortex and inferior parietal lobule that respond when the individual makes a particular movement or sees another individual making that movement. The mirror neuron system includes the mirror neuron circuit I for the purpose of intent of the Action/Mediation of Understanding of Emotional States of others Recognition involves the

ventral stream of the visual association cortex including the inferior temporal cortex. The Perception of location and movement involves the dorsal stream of the posterior parietal cortex. An action is understood when its observation causes the motor system of the observer to begin to 'resonate.' So, when we observe a hand grasping an apple, the same population of neurons that control the execution of grasping movements are activated in the observer's motor areas. In other words, we understand an action because the motor representation of that action is activated in our brain." The neurons responded to either the sight or the execution of particular movements.

As Mirror Neuron System plays a key role in social cognition, studies have revealed structural abnormalities in Mirror Neuron System patients with autism. Autistic children showed reduced Mirror Neuron System activity during observation and imitation of emotional facial expressions and social cognition. Such autistic Infants avoid contact & fail to anticipate being picked up Incidentally during first few Years of life they develop some skills such as 'walking' or 'talking' quicker than normal but other skills and developments are considerably delayed .As toddlers autistic show abnormal behaviors i.e. Start to see social dysfunctions "Insistence of sameness", lack of imaginary play ,avoidance of eye contact .Autistic Individuals are lacking the ability to attribute mental states or understand that another individual has a different perspective. Though 10% of autistic kids seem to have a certain remarkable talent ,ultimately it has been concluded that individuals with autism are lacking mirror neurons that would normally allow them to have an understanding of the thoughts, feelings, actions and emotions of others. So in short autistic children demonstrate deficits in 1) social interaction 2) verbal and nonverbal communication 3) repetitive behaviors or interests. In addition, they will often have unusual responses to sensory experiences, such as certain sounds or the way objects look. Each of these symptoms runs the gamut from mild to severe. They will present in each individual child differently.

Discovery of the mirror neuron system allows for finer tuning of social interactions between robots and humans. Humanoid" robots socially interact with humans. Not only humanoid robots, but in future robotic limbs ,muscles will also perform actions by control mirror neurons of human being also.

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EARLY CLINICAL EXPOSURE AS A METHOD TO AUGMENT CONTEXT BASED LEARNING AMONG FIRST YEAR MBBS STUDENTS.

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EARLY CLINICAL EXPOSURE

Abstract-

Background First year in undergraduate medical education are hard for the academic success of medical students. Actually, during this period students have to learn only theoretical knowledge and no contact with the patient in a clinical context. This adds to more anxiety in case of students and it leads to difficult to understand the subject. Early clinical exposure is meant to help first year undergraduate to overcome their initial queries and also motivate them to develop better knowledge and awareness for the same. **Material and Methods** In this study we have done intervention in teaching learning strategy. The topics selected were Endocrine physiology and General physiology, which is mainly consisting of traditional didactic lectures along with ECE . The first year MBBS students of 200 batch were divided in two groups, in interventional group (A) and Control Group (B). The intervention of early clinical exposure with the help of ECE design module and the outcome of this intervention was assessed by MCQ pre test and post test . Analysis of the pre and post test was done in both groups. The control group was also given intervention of ECE , so that they will not be deprived of new modality. Also we have collected student's feedback with validated questionnaire towards Early Clinical Exposure which was assessed by 5 point Likert-scale. **Results** : Mean test scores of pre test and post test in intervention group improved significantly from 20.4 ± 4.17 to 30.12 ± 3.52 (p value = .0001) in intervention group .Pre test and post test scores of both the groups , interventional and control

were compared and effectiveness was noted. **Summary and conclusion:** In the context of early clinical exposure this intervention is found to be very effective . By student's positive feedback it is found to create more interest and improvement .

Key Words : Early Clinical Exposure, perception of students and faculty.

Introduction

First year of undergraduate education is hard to understand the subject by medical students.

In the traditional curricula of medical education, we know that students learn theoretical knowledge without contact with the patient in a clinical context. Moreover, in clinical fields they cannot recall important basic scientific concepts; therefore, parts of their academic education become impractical [1,2]. Students feel anxious, which is often brought on by real clinical situations. Because factors include materials to be learned, perceived lack of relevance of the two basic science years. Now a days medical education community is strongly emphasized the value of early clinical exposure for preclinical medical students. Here objectives may include, to be comfortable with patients, basic clinical skill, creative more interest and study, active learning in pre-clinical setting. Data suggest that early clinical exposure can make basic science curricula more relevant [3].

Different teaching methods have been used to introduce an Early Clinical Exposure program consisting of patients- based visit and a hospital round to learn about patients' needs and health care system to both increase students' interest and enhance their learning [4]. In this study, the first MBBS students were taught the subject physiology by means of conventional didactic lectures and with the help of clinical exposure by showing patients intervention of teaching physiology was done. This study was undertaken with the aim of study the effect of Early Clinical Exposure in the teaching physiology to the first year MBBS students and objectives were :- 1. To introduce early clinical exposure among first year MBBS students , 2. To find out effect of early clinical exposure in improving context based learning among the first year MBBS students and 3. To gather perception of students regarding early clinical exposure .

MATERIALS AND METHODS

Study Design It was a Randomized prospective Interventional study and the study was conducted in Dept. of Physiology Govt. Medical College, Nagpur. The First year MBBS students batch 2015-2016, were selected for the study. From the batch of 200 students consents were taken to participate in the study. Students were randomly divided into two groups i.e. 100 students in each group .The intervention group (A) was given the intervention and was exposed to ECE where as other control group (B) was taught only with the conventional didactic lectures. After that cross over was done .The proposed Educational Project was approved by the Institutional Ethical Committee. **Method** :The students & the faculty were briefed about the study. A pre-test was given to intervention as well as control group and after teaching activity post test taken . Two topics selected were Endocrine physiology and General physiology chosen for the study. ECE was given in lecture hall. A post test was given to both the groups to assess the knowledge gain in that particular topic. To assess the effectively of the intervention feedback was taken from the study group of students with validated Questionnaire.

Statistical methods

Mean and P value for within the group was also taken . Comparison between two groups was done Data was analyzed in state version 10. 1. 2011. Within the group the comparison in pre test score and post test score was done by paired “t” test . Between the group comparison in change (from base line) in intervention and control group was done by unpaired “t’ test . Perceptions were ranked in Likert scale and their comparison in intervention and control group was analyzed by Mann Whitney U test (ranksum test) . Mean of pre test and post test score of Intervention and Control group was calculated . And difference in mean of pre test score and post test score of same group was calculated and found significant .

Observations and results

All the students completed the sessions and gave both the pre and post test and the feedback. Mean test scores of pre test and post test in Intervention group improved significantly .

Table no.1 showing comparison of mean of Anaemia, Thyroid & Anaemia +Thyroid pre-test & post-test within the group

	Interventional			Control		
	Pre test	Post test	P value	Pre test	Post test	P value
	Mean± SD	Mean± SD		Mean± SD	Mean± SD	

Anemia	9.84±2.62	15.12±2.32	0.0001#	8.7±3.09	13.56±2.57	0.0001#
thyroid	10.56±2.37	15±2.35	0.0001#	9.66±2.84	12.48±2.28	0.0001#
Anaemia+t hyroid	20.4±4.17	30.12±	0.0001#	18.36±4.08	26.04±3.02	0.0001#

P value - <0.05 significant, # - Paired t-test, * - Unpaired t-test

Intervention Effectiveness

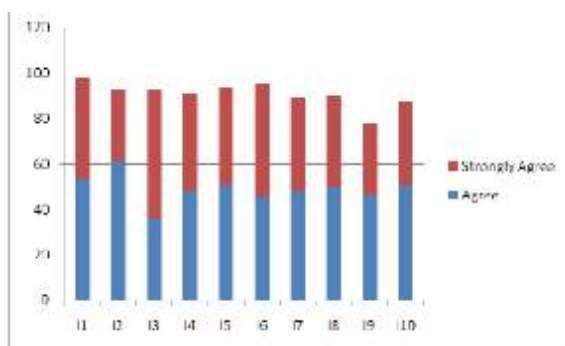
In Table No. 2 comparison of mean difference between two groups is significant. It is showing comparison of mean difference between two groups .

Variable	Interventional	control	P value
	Mean±SD	Mean±SD	
Anaemia	5.28±0.29	4.86±0.286	0.0001*
Thyroid	4.44±0.21	2.82±0.21	0.0001*
Anaemia± Thyroid	9.72±0.04	7.68±0.036	0.0001*

P value - <0.05 significant, # - Paired t-test, * - Unpaired t-test

Feedback Assessment

As we have taken rating in five point Likert scale , Figure No 1 is showing the student's perception on basis of Agree and Strongly Agree .



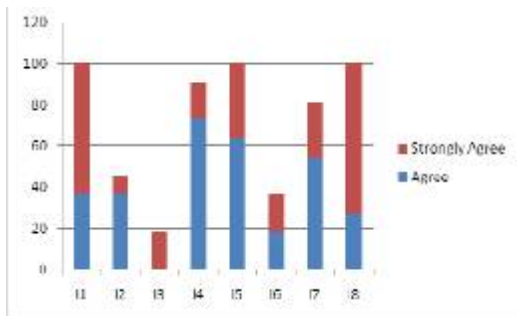
Findings with interventional & control group with the help of ranksum (Mann-Whitney) test, I1, I2, I3 & I9 were found to be significant with p value = 0.04, 0.001, 0.01, 0.001 respectively while I4, I5, I6, I7, I8 & I10 were found to be non significant.

Qualitative assessment is shown in Table No 3

1. The part liked most in this activity	<p>“Helps in learning physiology more interestingly.”</p> <p>“Enhances motivation towards learning physiology”</p> <p>“It makes our memory strong and improves concentration in class”.</p> <p>“It makes theory easy to learn and understand.”</p> <p>“They liked their active participation”</p>
2. Whether ECE should be continue	By all answer 100%was yes .

Faculty’s perception as in Figure 4 is showing in Item no 1,4,5,7,8,significant response , while Item no 2,3,6 are not significant .

Figure no. 2 showing faculty’s perception on basis of Agree & Strongly Agree



Open ended question’s from Faculty expressed their view to improve this activity by making smaller groups , and agreed that we should show cases as and when it is necessary and applicable.

Secondly the opinion given by Faculty was “ Given the 1st exposure in inception of being a clinician , thereby is advantageous .

Discussion

In the current scenario for first year of undergraduate teaching stress is on integrating the theoretical knowledge with clinical application. A very good example for above is early clinical exposure method. In the present study effectivity of ECE in learning physiology and perception of students has been studied. In this study Mean Test Score of pre test and post test in intervention group improved significantly as shown in Table no. 1 .Comparison of mean

difference between mean of two groups (Interventional and Control) is highly significant. In the present study significant difference was found in score between study and control group .This was similar to other studies on ECE also.

The faculty perceptions were also found more positive towards early clinical exposure than traditional teaching mode as in other studies .But in perception faculties mentioned about practical difficulties or preparations are required to arrange ECE. There is need of coordination with other departments , arrange patient for class room teaching , more faculty involvement needed , required patient according to the topic etc .(5) In spite of this it is perception of the author of this study that bringing the patient to the classroom is more feasible in Indian scenario. In this method of ECE co-ordination required between two departments for patient but not time consuming and neither more expertise man power required . Single patient is sufficient to expose the entire classroom .

Globally this concept has been accepted that ECE increases student interest in learning and increased recall capacity. But we have to look for feasibility also in our Indian scenario . In our Indian system strength of one undergraduate batch ranges from minimum 50 to 250 . Adopting the hospital visit method more planning and extra timings required and it is needed whatever we are teaching ,similar patient should be available in wards of hospital .It is not possible to take all the students at a time to the hospital . Otherwise there will be required not only more number of similar patients but also more expertise and man power . Same is true for community visit also .

Early clinical exposure, and the accompanying knowledge and skills development, does not replace the basic and clinical sciences, but rather enriches and contextualizes that learning and offers a wider variety of teaching and learning methods (5) Therefore the purpose for early clinical exposure in the 1st year is to learn basic clinical skills , enhance their motivation and prepare them towards the purpose for which they entered the profession . It also enable students to correlate what they are learning in basic sciences by learning basics clinical skills and observing relevant disease abnormalities , encourage students to learn the professional behavior of a doctor by observing and being mentored by a clinical teacher and provide the context for application of their learning in practice. (5,6),

Educational research has shown that students who are actively involved in the learning activity will learn more than students who are passive recipients. (5,7) In early clinical exposure the students actively participate in learning process .

Conclusion

ECE helps students to understand the basic concepts and integrate the basics with the applied aspects. It also helps in retain the content for long term.

ECE exposure provides learners to experience the relevance between basic science knowledge and its clinical application.

LIMITATIONS

This study has few limitations as this study was conducted at a single Medical Institute and only one method of ECE has been adopted therefore the settings may not be generalized to other Medical Institutions.

FUTURE DIRECTIONS

For successful implementation of ECE we require extensive Faculty development with ongoing support and scientifically rigorous educational research in Indian scenario.

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Conflict of interest none:

3 Electromagnetic Fields Emitted by Mobile Phone Affects Autonomic Function in Human Being

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ABSTRACT

Introduction: In today's world globalization is the new mantra. It is very difficult not to have technology. But with technology, come certain hazards. The only way to beat these is again, better technology. A cell phone technology is one of them, which introduce in India few years back, but now its need of society. It also works on electromagnetic radiation. The development of wireless communication systems has given rise to concerns about the potential human health hazards of increased and chronic exposure to electromagnetic field (EMF) and radio frequency (RF) radiation. The aim of this study is to find out the electromagnetic field emitted by mobile/cell phone affects autonomic function in human being.

Method: The present study was conducted over a period of three years (2009-2012), which covers urban as well as rural areas of Surat districts. The study includes anthropometric parameters (like Height, Weight, BMI), Clinical examination (like Pulse rate, base-line blood pressure etc.) and in Autonomic function assessment were performed in various groups. Ethical approval and other aspects were taken into consideration. The data obtained was tabulated with respect to various parameters and was statistically treated and analyzed.

Result and conclusion:In our study resting blood pressure i.e. systolic and diastolic blood pressure values were observed to be significantly increased in mobile phone user group as compared to the control group, which may be due to more pronounced vasoconstriction and carotid sinus reflex, this changes do not alter in all the subjects, but we find the values are significantly increased in mobile phone users.

Although radiation exposures due to mobile phones are very low, but once the energy is absorbed by the biological matter can cause severe and long lasting damage to human health. It

might take years for the damage to produce noticeable symptoms. According to that we performed the study and we found the changes accordingly. Based on this, we would like to conclude that the persistent & prolonged exposure to electromagnetic radiation emitted by mobile phone is a risk factor.

INTRODUCTION:

In today's world of Globalization, it is very difficult not to have technology, each day new and newer research will develop better and better technologies. In last decade, one of the developing fields is wireless communication technology like cellular phones, wireless internet, etc. More and more these type of communication services are expected to come up and its difficult to reverse this trend. A cell phone technology, which introduce in India last decade, but now its need of society, it works on electromagnetic radiation. Although the radiation due to this type of services is very low, but once the energy which is radiating from this absorbed by the biological matter, it can cause effect on human health. It might take years for the damage to reproduce noticeable symptoms. We always welcoming the upcoming technologies, but our consent are about health and safety precautions.

To find out the answer of our basic but important question (i.e. "Are mobile phone safe?") the apparent place to begin with is an internet and we found that, very limited data available on the possible effects. Autonomous scientific studies are showing the risks like increase B.P., brain tumor, infertility problem in male etc. But sponsored studies unsuccessful to show an apparent link between mobile phone uses & health risk. whereas there are no adequate indications that health parameters of rodents is affected by exposure to electromagnetic field, the data are still inconclusive, considering the above fact, we have designed the present detailed and prolonged duration study, to find out electromagnetic fields emitted by mobile phone are affects autonomic function in human being.

A mobile/cell phone is a low-power, single-channel; two-way radio and on the other hand cellular/mobile base stations are low-power multi-channel two-way radios. They produce radio-frequency (RF) energy for the communication purpose (that's how they communicate), and along with communication they expose people near them. This RF energy can also be called microwaves, radio waves, RF radiation (RFR) or RF emissions. Around the world a variety of frequencies are used for mobile/cellular phones [Stuchly, 1998]. And the interaction of that energy with biological material (like cells and its organelles) depends on the source used and its frequency [Foster, 1997], and most common frequencies for mobile/cellular phones are 800-900 MHz.

According to Adair [1994] the RF energy absorbed by humans may be less because the phones are low power and the RF energy emitted from them are generally very low. Although exposures are very low, but once the energy (thermal and non thermal) is absorbed by the biological matter, it can cause long lasting damage to it. It might take years for the damage to produce noticeable symptoms but harmful changes are manifest.

AIMS & OBJECTIVE

To find out the electromagnetic field emitted by mobile/cell phone affects autonomic function in human being.

MATERIALS & METHODS

The present study was conducted over a period of three years (2009-2012). This covers nearby areas of Surat districts which includes its urban and rural areas. The protocol was explained to 108 volunteer subjects, out of which 96 were selected after personal interview. In second year out of that 26 persons drop out so we studied 70 subjects overall, in which Group I consists of 34 subjects called control group and Group II consists of 36 subjects called mobile/cellular phone user group. Ethical approval and other aspects were taken into consideration while planning the experiments and written informed consent was obtained from each of the participant.

SELECTION OF SUBJECTS

Mobile users were specified and selected on the bases of our basic criteria. In that, at the time of first meeting with them we adjusted the new call time by call manager setting and after six days we calculated the average mobile operating time. The persons were identified who had fulfilled our basic criteria, that the user must have been using his phone for 25 hrs/month or more and must have been operating the mobile phone form last one year or more.

METHODOLOGY

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

- **Anthropometric parameters:**
This includes height, weight, BMI etc.
- **Clinical examination:**
This includes Pulse rate and base-line blood pressure etc.
- **Autonomic function tests**
Tests used to evaluate the **Sympathetic activity** are:
 1. B P response to standing
 2. Blood Pressure response to sustained handgripTests used to evaluate the **Parasympathetic activity** are:
 1. Heart rate response to standing
 2. Heart rate response to Valsalva maneuver

1. B P Response To Standing

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

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

2. Blood Pressure Response To Sustained Handgrip

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

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

3. Heart Rate Response To Standing

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

4. Heart Rate Response To Valsalva Maneuver

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

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

OBSERVATION & RESULTS

The study group comprised of 70 of apparently healthy subjects. The autonomic function tests were performed in all these subjects after the completion of recording of anthropometric parameter and clinical examination. The data obtained was tabulated with respect to various parameters and was statistically treated and analysed. The data was arranged into suitable tables for discussion under the different headings. The mean difference was taken to be significant at $P < 0.05$ levels. Statistical analysis was done using SPSS software version 17 for windows.

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

		<i>Blood Pressure (mm of Hg)</i>		<i>1 Min. After Standing</i>	
		<i>Systolic</i>	<i>Diastolic</i>	<i>Systolic</i>	<i>Diastolic</i>
Control Group (N = 34)	Mean	116.53	74.65	108.77	84.24
	+SD	13.33	9.01	13.52	8.29
Mobile Users (N = 36)	Mean	130.33	82.39	118.17	92.17
	+SD	10.91	8.44	11.54	7.82

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

Group ↓		B.P. (mm of Hg) Response to Sustained Handgrip									
		After 1 Min.		After 2 Min.		After 3 Min.		After 4 Min.		After 5 Min.	
		SBP	DBP	SBP	DBP	SBP	DBP	SBP	DBP	SBP	DBP
Control Group (N = 34)	Mean	121.4	82.5	127.7	90.0	134.7	95.7	139.5	101.9	144.7	104.9
	+SD	12.7	8.1	13.1	7.3	13.5	6.8	12.6	8.8	12.0	7.9
Mobile Users (N = 36)	Mean	135.6	86.7	140.9	92.1	146.3	97.9	151.7	102.8	155.9	107.8
	+SD	11.4	7.2	12.3	7.7	12.5	8.9	13.4	9.5	13.4	9.6

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

Group ↓		Heart Rate Response to Standing		
		Shortest R-R Interval (15th Beat)	Longest R-R Interval (30th Beat)	Ratio
Control Group (N = 34)	Mean	0.68	0.85	0.765
	+SD	+0.12	+0.13	+0.125
Mobile Users (N = 36)	Mean	0.69	0.83	0.76
	+SD	+0.08	+0.14	+0.11

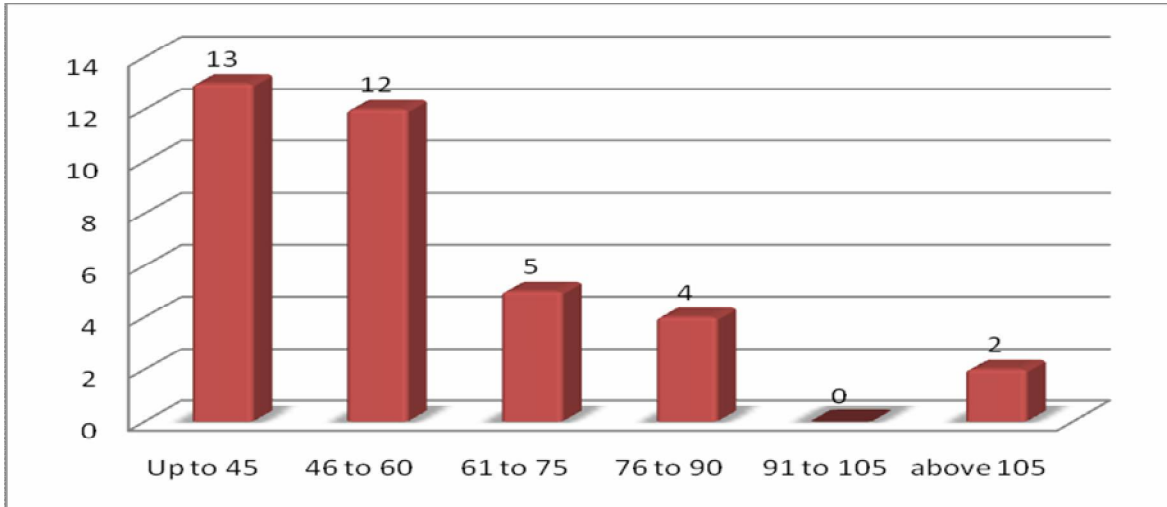
Table 4: Autonomic function assessment: Heart rate response to Valsalva maneuver

Heart Rate Response to VALSALVA Maneuver				
	Variable	N	Mean	+SD
During Maneuver Shortest R-R Interval	Control	34	0.7471	0.11514
	Mobile User	36	0.7544	0.08453
After Maneuver Longest R-R Interval	Control	34	0.9659	0.12422
	Mobile User	36	0.9622	0.10071

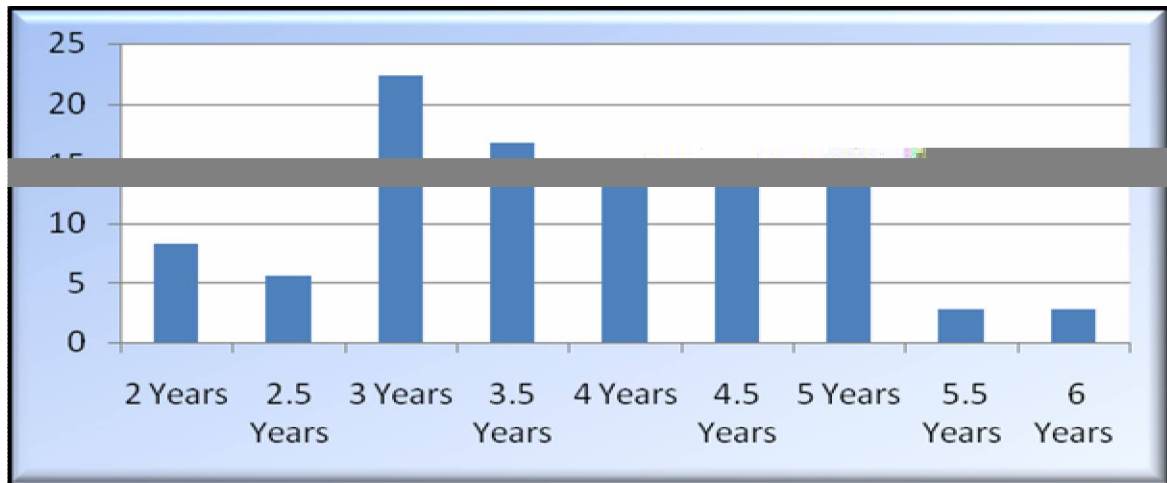
Table 5: ANS response to different tests

Group	Sympathetic Test				Parasympathetic Test				Total Abnormal Test	
	BP Response to Standing		Sustained Handgrip Test		HR Response to Standing		VALSALVA Manoeuver			
	B	A	B	A	B	A	B	A	B	A
Control Group	00	00	01	02	00	00	01	00	02	02
Mobile Users	07	03	01	01	00	06	02	02	10	12

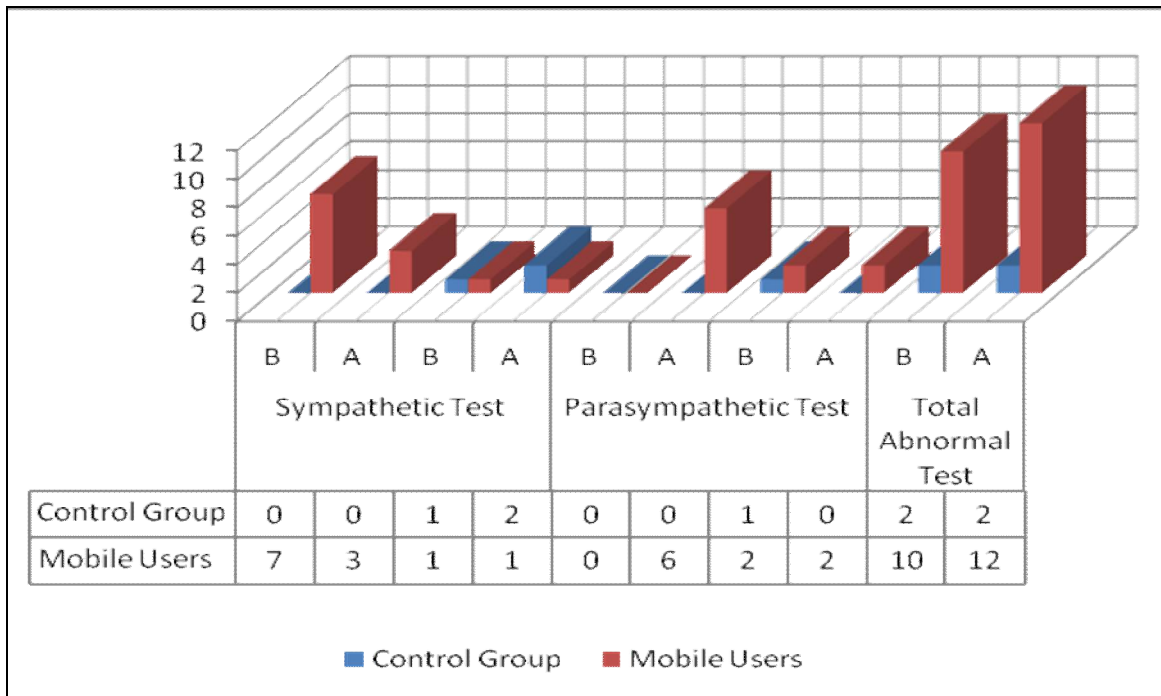
Graph 1: Total use of mobile phone per months (duration in hrs. Vs frequency)



Graph 2: Duration of mobile phone use (using since)



Graph 3: Response to different ANS tests



DISCUSSION

Alteration of ANS function will greatly influence the functions of vital organs especially the heart i.e. cardiovascular system. The present study was designed to test the autonomic activities in 36 normal health mobile phone users and their comparison with 34 control group. Out of four autonomic function test abnormal result in more than two tests consider as autonomic dysfunction.

Average values of results and autonomic dysfunction may significantly incline towards exposure of electromagnetic radiation emitted by mobile phone. Therefore, our experimental protocol seems minimally biased since we confirmed that there were changes in ANS functioning due to frequent exposure to electromagnetic radiation emitted by mobile phone. Noted changes are statistically analyzed and conclusion of the present study was compared with previous studies.

In normal the sitting – lying differences is due to hydrostatic influence acting mainly through the carotid sinus reflex. The national guidelines explain that diastolic blood pressure is approximately 5 mm/Hg higher in sitting position than when lying down and systolic pressure is 8 mm/Hg higher in the lying-down position than in the sitting position, but only when the person taking the blood pressure measurement positions the patient's arm so that it is at the same level as the right atrium of the heart (Leigh Ann Morgan, 2004) and similar result were found in our study during resting stage but the blood pressure i.e. systolic as well as diastolic value what we reported in mobile phone user are higher than the normal or control group. German investigators, Frey et al., (1998) report that exposure to electromagnetic fields during mobile phone use may increase resting blood pressure. It causes an increase in sympathetic efferent activity with increases in resting blood pressure between 5 and 10 mm Hg (Frey et al., 1998). Braune et al. (1998) and Stacy Eltiti et al. (2007) have reported acute effects on blood pressure in human volunteers exposed to a conventional GSM digital mobile phone. In our study resting blood pressure i.e. systolic and diastolic blood pressure values were observed to be significantly increased in mobile user group as compared to the control group.

Effects of mobile phone radiations on the autonomic nervous system have been reported to have its impact on the cardiovascular system. Change in blood pressure due to mobile phone radiations and base station radiations suggesting the slight increase in resting blood pressure was already suggested by Braune et al. (1998) and Stacy Eltiti et al. (2007). Andrzejak R et al. (2008) estimated the influence of the mobile call on heart rate variability (HRV) and suggested the average normal sinus RR intervals were increased significantly. This study also points that the call with a mobile phone not only changes the RR interval but also changes the heart rate. The change in heart rate is the property of autonomic nervous system which also indicates that the mobile phone radiations may change the autonomic balance of the mobile user. Magda Havas (2010) also clearly showed a relationship between exposure of the subject to radiations and changes in the autonomic function system that can lead to heart irregularities (alters heart rate or resting blood pressure), dizziness, nausea, fatigue, sleep disturbances, profuse sweating and fainting spells.

In our study resting blood pressure i.e. systolic and diastolic blood pressure values were observed to be significantly increased in mobile phone user group as compared to the control group, which may be due to more pronounced vasoconstriction and carotid sinus reflex. The difference in our study with the other investigators is that we prolonged the exposure of the subjects for different duration for more than one year to observe the effect on subjects on being exposed to mobile cell use for a longer duration. Our observations reveal autonomic function changes do not alter in all the subjects but if we compare the study group with the controls than we find the values are significantly increased.

SUMMARY & CONCLUSION

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

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4 ULTRASOUND GUIDED INTERNAL JUGULAR VEIN CANNULATION IN CRITICALLY ILL PATIENTS IN ICU

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Abstract

Introduction:

Portable ultrasound machines are highly valuable in ICUs, where a patient's condition might not permit shifting the patient to the USG department for imaging and proper positioning may be

difficult due to haemodynamic condition of patient. Traditionally central lines are put blindly using anatomical landmarks, which often result in complications such as difficulty in access, misplaced lines, pneumothorax, bleeding from inadvertent arterial punctures, etc. Ultrasonography provides "real time" imaging, i.e., the needle can be visualized entering the vein that may result in less associated complication.

Aims:

We performed a study regarding

- ease of cannulation
- time consumed
- associated complications

in USG guided IJV cannulation in ICU patients.

Materials and Methods:

The study was performed in a ICU. Twenty five patients were selected for IJV insertion. The right internal jugular vein (IJV) was cannulated in all. A portable ultrasound machine was used during cannulation. The vessels were visualized in the transverse section with the internal carotid artery (ICA) identified as a circular pulsatile structure, while the IJV as a lateral, oval nonpulsatile structure). The needle was inserted perpendicular to the skin under visualization on the US screen. Central venous line was then inserted by the Seldinger technique.. in this we study parameters like time for insertion, attempts required, and complications encountered.

Results:

The mean time to successful insertion was 126.2 ± 15.4 sec in USG guided technique. Out of 25 patients, all (100%) cannulated successfully. Only in 1 patient carotid artery was punctured and was cannulated in 2nd attempt. success rate is 100%. 96% patients are cannulated in first attempt.

Conclusion:

USG-guided CVC is thus easier, quicker, and safer than landmark approach.

Keywords: central venous cannulation, intensive care unit, ultrasound

INTRODUCTION

Central venous (CV) access is a commonly performed procedure with multiple indications in routine and emergent situations. Access to the internal jugular vein (IJV), subclavian vein (SV),

and femoral vein (FV) has typically been described in the emergency medicine and critical care literature using the traditional landmark-based approach. Studies using landmark-based methods have reported failure rates and complication rates as high as 30%^[16] and 18.8%, respectively.

The use of ultrasonography for CV access was first described in 1978;^[18] Doppler localization was used to mark the skin overlying the IJV. Not until 1986 was the use of real-time ultrasonographic guidance for IJV cannulation reported.^[21] In the 2008 Emergency Ultrasound -Guidelines from the American College of Emergency Physicians (ACEP), ultrasonographic guidance for CV access was listed as a "core or primary emergency ultrasound application."^[2] In 2010, Ortega et al elaborated the methodology to employ ultrasonography for locating the IJV, underlining the safety and reliability of the technique.^[7] The use of ultrasonographic guidance during CV line placement has been demonstrated to significantly decrease the failure rate, complication rate, and number of attempts required for successful access.^[1,5,8,19]

For IJV access, patients should be placed in a slightly Trendelenburg (10°) position. The head should be in a neutral position (maximum head rotation of 30°). A randomized trial comparing neutral head position to 45° neck rotation did not demonstrate any difference in rate of complications.^[10] For operator-assisted IJV ultrasonographic guidance, the operator should stand on the ipsilateral side of the patient. The procedure should be performed from the head of the bed and the indicator of the probe should be kept pointing to the operator's left (this corresponds to the left side of the patient's body and is opposite of our traditional orientation). For cannulation of the right IJV, this probe orientation ensures that the vessel positions in the patient's neck (carotid to left, IJV to right) share the same orientation on the ultrasound display. The operator should have a clear view of the ultrasound image.

MATERIAL AND METHODS

Twenty five critical care patients at the intensive care units of V S General Hospital, Ahmedabad, who needed central venous cannulation, who gave their informed Written consent.

Indications

- Other peripheral sites are unavailable or inaccessible.
- A large-bore venous catheter is needed for rapid administration of fluid or blood products in emergent situations.
- For the infusion of vasopressors, sclerosing agents, or total parenteral nutrition with less risk to the vein.
- For placement of a pulmonary artery catheter or trans venous pacemaker.
- For continuous CV pressure and CV oxygen saturation monitoring during resuscitation.

Absolute Contraindications

- Infection at insertion site
- Anatomic obstruction (thrombosis, anatomic variance)
- Superior vena cava syndrome

Relative Contraindications

- Coagulopathy
- Systemic infection
- Presence of pacing wires or other indwelling catheters at insertion site
- Right ventricular assist device

METHODS

Begin the procedure with proper scrubbing and universal precautions, including sterile gloves, gown, mask, cap, and protective eyewear.

Cleanse the patient's skin with an antiseptic such as a povidone iodine solution and ethyl alcohol. Sterile drapping done .

Vascular cannulation may be accomplished with the catheter-over-guidewire technique, which is more commonly known as the Seldinger technique.

The vessel to be cannulated may be located with ultrasonography via dynamic (real-time) method

Dynamic (real-time) method

The dynamic method, shown below is performed with the aid of an assistant. , a portable ultrasound machine "Sonosite Micromaxx®" with a 7.5-MHz probe was used. A sterile sheath, commercially available, or glove with transmission gel (any sterile gel/lubricant may be used) inside should be unrolled over the ultrasound probe. Additional sterile transmission gel is then placed on the outside of the probe cover. The probe is then placed on the patient's skin and the target vessel is identified. The vein is identified with several techniques, including phasic respiratory pulsations, ease of compressibility, and increased filling using the Valsalva maneuver. The vein to be cannulated should be centered on the ultrasound screen. Once the anticipated path of the needle is identified, the path can be anesthetized with lidocaine under ultrasonographic guidance. This part of puncture is anesthetized to minimize patient discomfort.

Next, the skin is punctured with a thin-walled percutaneous entry needle. Do not focus on the ultrasound monitor until the needle has entered into the skin. Focusing on the monitor prior to needle entry can lead to inadvertent needle sticks. Visual focus is then directed to the ultrasound monitor, where the needle appears sonographically as an echogenic line with reverberation or ring-down artifact. Often, the needle is not directly visualized; however, tenting of each tissue plane can be appreciated.

In the short-axis view, scan back and forth with the probe over the needle to locate the needle tip. Often, a longitudinal view can help localize the needle tip. After the needle is seen puncturing the vessel and a flash of blood is seen in the syringe, the ultrasound transducer may be set aside. Visualization of the guidewire using the longitudinal view within the target central vein verifies intravenous placement. This view minimizes the risk of puncture of the posterior vessel wall. In the event that the location of the wire cannot be verified (eg, in cases in which

back-wall puncture of the vessel is suspected), the guidewire can be partially withdrawn and the curvature of the distal "J" portion of the guidewire can be visualized within the target vessel. After needle puncture of the vessel and guidewire placement, the entry needle is withdrawn, and the puncture site is enlarged with a No. 11 scalpel blade. A dilator may then be used to facilitate placement of the catheter. Venous blood return and easy flushing suggest accurate placement. A three way lumen port (certofix trio@ 715) inserted. Ultrasonography can also visualize the catheter and its relative location to the vein. After the catheter is in place, it is secured with either simple interrupted sutures. Post procedural chest radiography is necessary to confirm placement and evaluate for complications such as pneumothorax.

Figure 1

IJV and ICA as seen normally on scan (IJV = internal jugular vein, ICA = internal carotid artery)

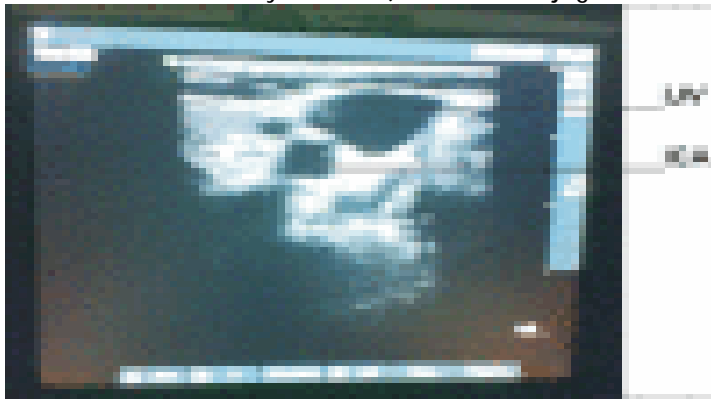


Figure 2

On applying pressure with US probe, IJV gets compressed while ICA remains as such



RESULTS

Out of 25 patients, all (100%) cannulated successfully. In

Only 1 patient carotid artery was punctured and was cannulated in 2nd attempt.

1) Mean access time of ijv by USG guided method is 126.2 ± 15.4 seconds for 25 patients.

Success rate is 100%.

2) 96% patients are cannulated in first attempt.

3) Complication rate is 4%.

Mean age group 49.2 yr(40 to 70 years).

Real time ultrasonography can be used to view the in vivo vascular anatomy of the neck and in ascertaining the size of IJV and its anatomical relations. These features make this instrument a useful tool to study various body positions and in finding out the position which maximize IJV diameter, thereby increasing the first pass success rate. In landmark technique, trendelenburg technique is used which may be difficult in many critically ill patients. So usg guided cannulation give this advantage.

DISCUSSION

The USG approach had lower incidence of complications for cannulation of the internal jugular vein like pneumothorax, inadvertent vessel puncture, hydrothorax, hemothorax or misplaced cannula etc..

After three or more attempts at insertion, mechanical complications increase by six times compared with a single attempt^[7]. In usg guided approach most patients are cannulated in 1st attempt with compared to conventional method. In usg technique access time required is much more lesser.in most patient where trendelenburg position may be difficult where usg comes like a gift.

As suggested *Int J Anat Res 2014, 2(4):757-60. ISSN 2321-4287 76* 83.3% patients in LMG technique was cannulated on the first attempt. When compared with the USG and LMG techniques for IJV cannulation on first attempt the results of Dimitrios Karakisis et al^[6] 100%vs 94.4% and that was in Piero Antonio et al^[13] 100% vs 91.6%. Wg Cdr R M Sharma et al^[20] 100% vs 98% in USG and LMG technique. In Tista A et al^[17] 100% vs 82%, and in Bart G. Deny et al^[21] 78% vs. 43.3% for USG and LMG technique. Mallory et al^[11] a with 85% vs.15% respectively, the results obtained in our study were almost similar. There were no serious complications like pneumothorax or nerve injuries in either group when compared to the occurrence of pneumothorax in 2.4% vs 0% in Dimitrios Karakisis et al^[6] study and Tista A.et al^[17] study of 5.8% vs 0% in LMG technique and USG technique respectively.

A disadvantage associated with USG-guided CVC, is procedure-related increased incidence of infection. But the use of a two-operator technique with sterile self-adhesive plastic and povidone iodine solution has reduced the incidence of infection^[15] This technique also require skills regarding ultrasoundThe use of ultrasound during CVC is limited and is most strongly associated with the availability and cost of the equipment^[3]

Complications during central venous catheterization (CVC) are not rare and can be serious. The use of ultrasound during CVC has been recommended to improve patient safety.

CONCLUSION

our observations and results, we came to the conclusion that the USG approach took lesser time, required lesser attempts, and had lower incidence of complications for cannulation of the internal jugular vein compared to conventional method. Regular use of USG for CVC will definitely benefit critically ill patients. It would be complimentary for any ICU to have portable USG facility, although a costly investment in a developing country like India, one must keep in mind that use of USG is a prudent approach as USG-guided CVC is easier, quicker, and safer than landmark approach. Similarly USG once started to be used generally is expected to be highly useful. The use of ultrasonography in experienced hands reduces the number of attempts and arterial punctures compared with the landmark method.

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5 Psychological aspects of Quality of life on strabismus

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Abstract

Objectives: To determine Quality Of Life using two preformed questionnaire ASQE and CVFQ in Strabismic subjects compared with Controls, and to assess QOL according to Gender and Angle of Deviation.

Methods: This is a cross-sectional observational study conducted over 100 strabismic subject who visited tertiary eye hospital. Initially Subject underwent comprehensive eye examination to rule out any ocular pathology. Once subject was identified for the study, then subject and parent both were requested to fill up the questionnaire. All data were scored in Likert scale where 0 indicate worst and 1 indicate best.

Result: No statistically significant difference was found in overall QOL of strabismic subject and parent, compared with control and their parent. Clinical significant difference was found in some domains when assessed in gender.

Introduction:

Quality of life (QOL) is emerging as an important outcome measure for interventions designed to improve health, wellbeing or both. Concept of QOL is increasingly recognized as an important measure in health care and can be defined as an individual's evaluation of his/her overall well-being & life experience, which is influenced by physical, psychological, social & environmental factor. QOL uses sequence focuses on different aspects of health & well being & proper use of medical technologies designed to improve people's QOL. Health & well being are very personal & private issues, the perception of individuals determine the acceptance, rejection or adjustment of technological devices.¹

Strabismus is a clinical condition in which the eyes are not aligned properly. It is sometimes assumed that subject with strabismus may suffer from various psychological & emotional problems. A number of instruments are available for measuring HROQL(Health Related Quality Of Life) in strabismus including but not limited to: CVFQ (Child Visual Function Questionnaire), 20-item Adult Strabismus Questionnaire (AS-20), Amblyopia & Strabismus Questionnaire (A&SQ), 25-Item National Eye Institute Visual Function Questionnaire (VFQ-25), Derriford Appearance Scale 24 (DAS-24).

Environmental factor like cultural and social impact, Personal factors, life style have effect on QOL.² The aim of the study is to determine the QOL of Strabismic subject in western part of India.

Method 100 Subjects with strabismus who visited at a tertiary eye hospital in Ahmedabad within the period of October 2014 to December 2015 were included. Subjects with any systemic & ocular pathology were excluded. Questions from two preformed questionnaire ASQE,³ and CVFQ⁴ were used. ASQE is 5 domains questionnaire which includes Distance vision, Visual disorientation, Social contact & appearance, Diplopia & Fear of losing better eye. CVFQ is a vision specific QOL instrument designed for use in children, consist of 6 domains i.e. General Health, General Vision, Family impact, Personality, Competence and treatment. These questions were translated into Gujarati language following standard rules of translation and validated. After comprehensive eye examination these questionnaire were given to respective Subjects and also to their parents. Responses were scored in Likert scale where 0 indicate worst and 1 indicated best. 100 age matched subjects without any systemic and ocular pathology other than refractive error were taken as control. Scoring for control group was also similar as that of strabismic subjects.

Data Analysis All the data were entered in Microsoft Excel version 2007. A total score was computed by taking average of the subscale scores. Mean and Standard Deviation were computed for comparison of different dimension of data. For within group comparison between different dimensions paired T-Test was used. Unpaired T-Test was used for comparison between different groups. P value greater than or equal to 0.05 were considered as statistical significant.

Result The demographic data of 100 strabismic subjects & control are shown in table 1. There was no statistical significant difference in overall QOL between Subjects & control ($p=0.20$). When analyzed separately or each domain Visual orientation, Diplopia had no statistical significant difference when compared with controls. There was significant statistical & clinical difference in domains of Social contact & cosmetic problem, Distance Estimation, Fear of losing better eye between subject & controls. Figure 1 shows overall QOL of strabismic subject from the perspective of parent of subject and control. Table 2 shows the individual domains of QOL of parent and controls. When Overall QOL was compared between Male & Female subject there was no clinically significant difference shown in figure 3. There was significant difference was found in Exotropic subject as compared to Esotropic ($p=0.009$) Subject

in which greater difference was found in the domain of Fear of losing better eye & Social contact and cosmetic problem.

Discussion HRQOL is an important tool for the assessment of Quality Of Life. It can assist in clinical treatment of a disease condition, enhance practical decision making. In the present study 5 domains were used to assess Quality Of Life. Using ASQE questionnaire subjects with strabismus were found to have no statistical significant difference in overall Quality Of Life when compared to control group. Whereas from the study by Hui Yung Lam, Psychosocial and functional implications of strabismus in adult patients using the AS-20 score, statistical difference were found in Strabismic subject as compared to that of the control group ($p=0.035$)². The difference is may be due to different factors like age of the Subject, Social background, Economical status, Different Questionnaire were used.

In the present study Fear of losing better eye, Social contact & Cosmetic Problem domains were clinically as well as statistically affected. This may be due to appearance of squint which was making social contact difficult for the Subject. Appearance has enormous influence on psychological functioning & the eyes in particular play an important role in perceived attractiveness & communication. unsurprisingly, ocular misalignment has considerable impact on QOL.⁵ Due to visible misalignment of the eye strabismic people were shown to have negative bias & disadvantage in their social life. This may lead to social phobia & depression which make them more disable in social life, family & work.

General health & treatment of subject were clinically as well as statistically affected compared with control. This statement agrees with the study done by Vision-related Quality Of Life & Emotional Impact in Children with Strabismus by Y Chai, Y Shao.⁶

Appearance was one of the factors in strabismus which affected Quality Of Life. There was a significant difference in the QOL in Esotropic subjects compared with Exotropic Subject. This might be due to easy identification of the Exotropes than Esotropes by the general population

No clinical significant difference was found in the overall QOL between male & female using ASQE questionnaire. When assessed separately Social contact & cosmetic problem had greater clinical & statistical significant difference in QOL in male as compared to female. This may be due to recent change in the trend where males are becoming cosmetically more aware as compared to females.

It is found from the present study that now a strabismic subject may be easily accepted due to which no significant differences were found which affect Quality Of Life of a strabismic subject.

Conclusion In the present study no significant differences were found in overall QOL. Whereas clinical significant differences were found in domain like Social contact and cosmetic problems, General Health.

Table 1

Subject			
Age	Exo	Range:5-19	Mean:10.1(\pm 3.56)
	Eso	Range:6-13	Mean:9.99(\pm 3.58)
Gender	Male(42)	Exo:37	Eso:5
	Female(58)	Exo:51	Eso:7
Angle Of Deviation			
Type of Deviation	Range	<15PD	>=15PD
Eso	10-40	3	20
Exo	4-40	20	57

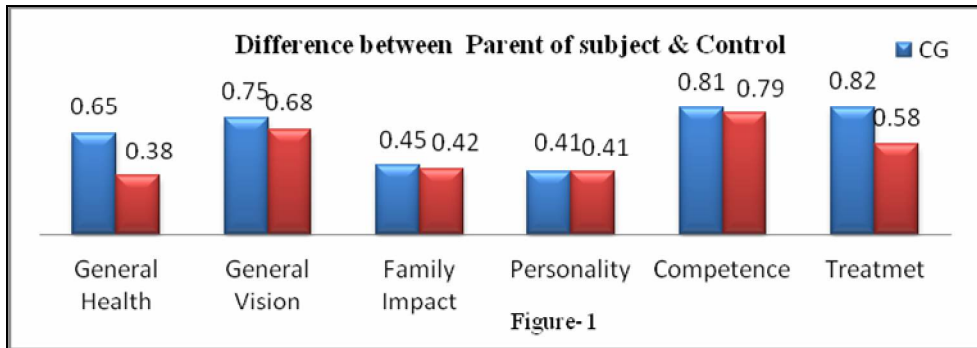
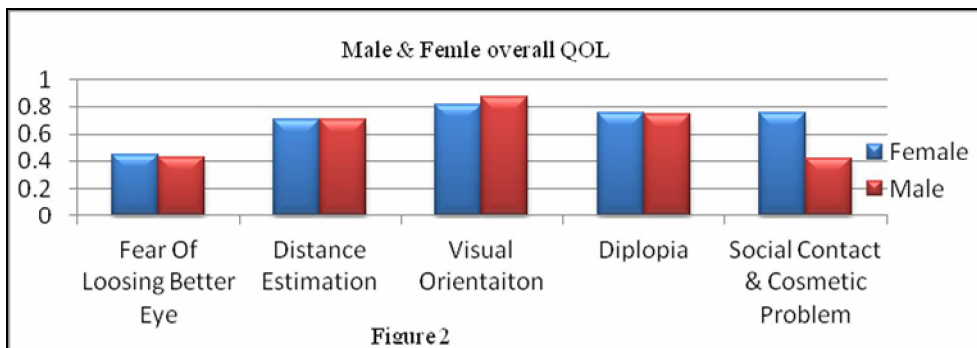


Table 2

Component of parent of subject & Control	P value
General health	0.005
General vision	0.94
Family Impact	0.25
Personality	0.30
Competence	0.42
Treatment	0.60



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6

TRENDS AND OUTCOME OF EMERGENCY SURGERY FOR DUODENAL ULCER PERFORATION

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Abstract:

Context: Duodenal Ulcer Perforation

Aims: The aim of the study is to see the trends and analyse the outcome of perforated duodenal ulcer.

Settings and Design: Retrospective study- retrospective review of case records.

Methods and Material:

Case records of 302 patients of DUP presented to a tertiary teaching institute between January 1992 and June 2004 were retrospectively analysed. Various parameters like age, gender, duration of symptoms, comorbidity, leucocyte count, peritoneal contamination, size of perforation, procedure performed and its outcome were studied.

All cases operated for DUP only were included.

Statistical analysis used: -

Results: Observations & Results:

302 patients [274 (90.73%) males and 28 (9.27%)females] underwent surgical procedure for a perforated DUP in this institute. 5 (1.66%) patients underwent a definitive procedure while the rest 297 (98.34%) underwent primary omental patch.

75 (24.83%) patients developed infective complications. 18 (5.96%) of patients developed a bile leak following the surgery. 12 (3.97%) of total patients expired whereas the rest 290 were discharged .

Conclusions:

The presentation of patients, trend of surgical procedure and the associated morbidity and mortality is similar to other studies. In our study, incidence of emergency surgery and consequently leak rate and mortality has increased in early 2000s this could be attributed to changing patient demographics and needs to be studied further.

Key-words: Duodenal Ulcer perforation, Emergency surgery, Leak rate,

Introduction:

Introduction

Peptic Duodenal ulcer is one of the common GI disorders. With the increased use of H2 receptor blocker, or proton pump inhibitor and increased availability of fiberoptic endoscopy; the

hospital admissions and elective surgeries for Duodenal Ulcers have significantly reduced over the past three decades [1,2,3,4,5].

However, the incidence of emergency surgery and mortality associated with peptic ulcers has not decreased as expected. On the contrary recent studies suggest an increase in the rates of hospitalisation and mortality in elderly patients for peptic ulcer complications of perforation and bleeding [4,5].

Duodenal Ulcer Perforation (DUP) is the second most common complication of peptic ulcer Disease and may become a more common indication for emergency surgery than bleeding. Surgery is almost always needed for DUP [3,4,5].

In a DUP the surgical options are simple patch closure, simple patch closure with highly selective vagotomy (HSV), or Patch closure with Vagotomy and Drainage. Presently the simple patch closure is one of the most commonly performed surgeries for DUP [3,4,5]

There is a huge amount of information on DUP and its management but not much studies are available in Indian scenario hence the need for a study. The aim of the study is to see the trends and analyse the outcome of perforated duodenal ulcer.

These patients were posted for surgery after taking detailed history and all investigations done as required for surgery. All the patients with diabetes were evaluated for blood sugar levels and taken

Subjects and Methods:

Materials and Methods

302 patients of DUP presented to a tertiary teaching institute between January 1992 and June 2004. Case records of these patients were retrospectively analysed for:

- 1- Age and gender.
- 2- Duration between onset of symptoms and admission
- 3- Co-morbid conditions associated
- 4- Total leucocyte count on admission
- 5- Amount of contamination
- 6- Site and size of perforation and chronicity.
- 7- Type of procedure performed
- 8- Outcome and complications of procedure

Inclusion criteria: All cases operated for DUP only were included. Cases were not restricted by age or gender or religion.

Exclusion criteria

Patients undergoing surgery for gastric or bowel perforation, or traumatic duodenal perforations were excluded.

The patients included in the study are not from any particular unit or surgeon. They represent all the patients presenting to the institute. Also, as this institute is a teaching hospital most of these cases have been performed by residents under assistance/supervision by faculty.

History and Examination:

The admission details and case records of the patients included in the study were retrieved and studied retrospectively. From the records the details like- age, gender, the onset of symptoms, chronicity, total leucocyte count, presence of co-morbid conditions and NSAID use were noted down.

The operative records were studied and the details of amount of contamination, site, size, acute or chronic nature of perforation and the type of procedure performed were noted.

The further progress of patient in terms of complications, morbidity, mortality, and outcome were noted.

As a principle in this institute nasogastric tube and abdominal drains are placed in all patients operated for perforation.

Results:

Observations & Results:

From January 1992 to June 2004 there were 302 patients [274 (90.73%) males and 28 (9.27%) females] who underwent surgical procedure for a perforated DUP in this institute [Chart 1]. 5 (1.66%) patients underwent a definitive procedure in the form of truncal vagotomy, gastrojejunostomy with feeding jejunostomy while the rest 297 (98.34%) underwent primary omental patch.

Presentation:

DUP presented in the age group of 13-90 years, the mean age being 41.10 yrs. The perforated ulcer was located in the anterior wall of the first part of duodenum. No posterior perforated ulcer was noted [Table 1].

Most of the patients presented to the hospital between 4-72 hours of onset of symptoms, mean being 11.37 hours. On presentation the patients mean pulse was 95.47 bpm (range 78-124) and the mean blood pressure was systolic 111.65 (range 80-160), diastolic 71.77 (range 30-98) mm of Hg. The mean total leucocyte count was 8271.3 (range 6000 – 21870) /ml. The mean peritoneal contamination was 718.28 (range 300- 2000) ml. The mean size of perforation was 7.08 (range 2-20) mm [Table 1].

Co-morbid condition

54 (17.88%) of all patients with DUP were associated with a pre-existing co-morbid condition. 16 (5.3%) of patients had a history of NSAID consumption. 7 (2.3%) of patients had a history of Chronic DU.

Outcome

75 (24.83%) patients developed infective complications. 18 (5.96%) of patients developed a bile leak following the surgery [Chart 2]. 12 (3.97%) of total patients expired whereas the rest 290 were discharged [Chart 3].

Chart 1

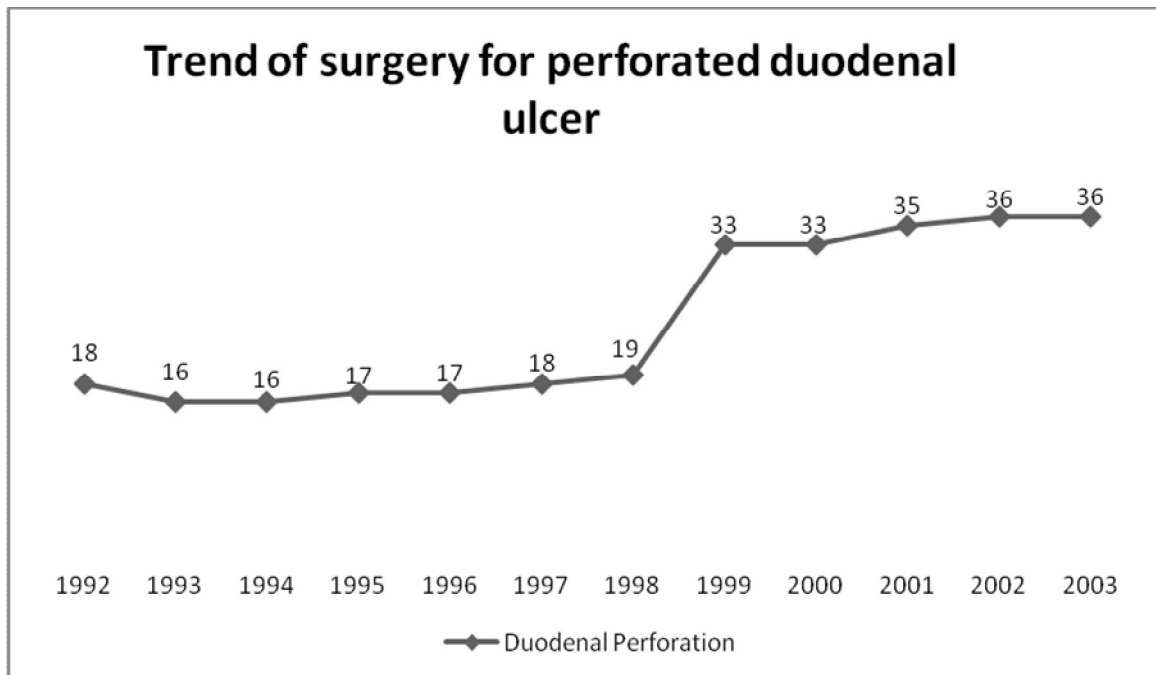


Chart 2

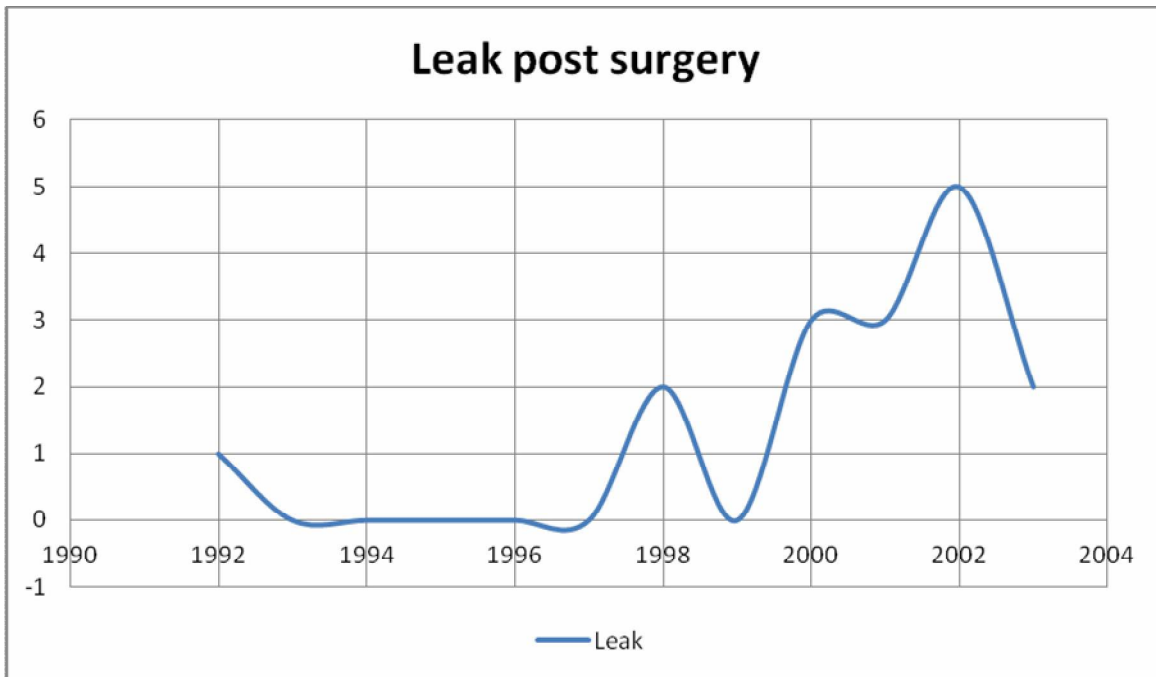


Chart 3

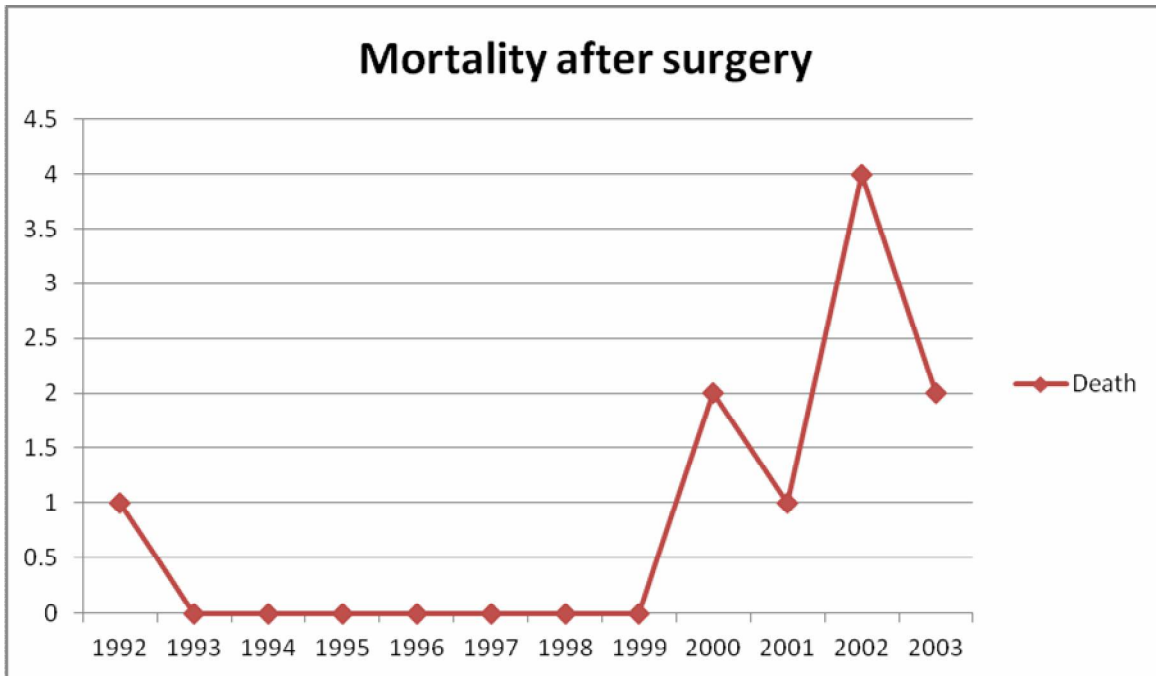


Table 1

	Mean
Age	41.1 years
Onset	11.4 hours
Pulse	95.5 bpm
Systolic BP	111.65 mm of Hg
Total Leucocyte count	8271.3/ml
Peritoneal Contamination	718.27 ml
Size of perforation	7.08mm

Discussion:

Discussion:

Perforation constitutes one of the major complications of duodenal ulcers. It is estimated that 0.3% of patients with duodenal ulcers perforate annually [3]. There have been a few Indian studies which estimate the rate of perforation from 4-25% of peptic ulcers [6,7,8].

The earliest account of operative treatment for a perforated peptic ulcer was by Miculicz in 1887 and the first report in the English language of a successful operation for a perforated duodenal ulcer was by Dean in 1894. He had sutured the edges together, washed the abdominal cavity and closed without drains. Two years later Bennett suggested the use of omentum to plug the defect in cases with large perforations [9]. Celian-Jones (1929) and Graham (1937) later showed the simplicity and effectiveness of the procedure [10]. Later in the 90s with the advent of laparoscopic era, even DUP began to be repaired by laparoscopy with good results [11,12]. There have been studies and case reports proving the efficacy of laparoscopic repair in our Indian scenario as well [13,14]. In our study none of the patients have undergone laparoscopy as the instruments were not available for emergency surgery during the study period.

With the advances in the medical therapy the incidence of elective surgery for peptic ulcer disease has decreased, but the incidence of emergency surgery has remained constant or has increased over the last decade [4,5]. In our study it was noted that between the late 90s and early 2000 the number of patients undergoing emergency surgery for DUP has increased.

A couple of decades back it was advisable to add a definitive acid reduction procedure to primary closure of perforation [3]. Presently, primary closure with an omental patch or with a Grahams patch is the recommended procedure as ulcer recurrence can be prevented in most patients by medical regimen designed to eradicate *Helicobacter pylori* [2,5,15,16,].In the initial years of our study period, 5(1.66%) patients with chronic duodenal ulcer underwent a definitive procedure.

In ideal circumstances a perforated duodenal ulcer should be operated at the earliest after preoperative resuscitation [3,9,5]. Late presentation and delayed surgery has been associated with increased morbidity and mortality. In our study the mean delay in presentation has been 11 hours, this has been attributed to multiple factors like non-availability of transportation and long travel distances, sometimes up to 100 kilometres. There is an association of NSAID with peptic ulcer disease [1,4], in our study 16 (5.3%) of patients had a history of NSAID consumption.

The incidence of a complication and mortality following emergency surgery for DUP observed in our study is in concordance with other international studies [17,18]. In our study, 18 (5.96%) patients developed a bile leak following the surgery which is comparable to other studies which have mentioned the leak rate ranging from 0.5- 9% [17,19,20,21,22,23].

Conclusion:

The presentation of patients, trend of surgical procedure and the associated morbidity and mortality is similar to other studies. In our study, incidence of emergency surgery and

consequently leak rate and mortality has increased in early 2000s this could be attributed to changing patient demographics and needs to be studied further.

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7 A study of distal tibia fractures treated with distal tibia plate with open reduction and MIPPO technique

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ABSTARCT

Background: Fractures of the distal tibia can be challenging to treat because of the limited soft tissue, the subcutaneous location, and poor vascularity. There is a considerable debate regarding the best method for treating distal tibial fractures. In present study we have treated various distal tibial fractures with distal tibia plate either by open reduction and internal fixation

or using MIPPO technique. **Materials and methods:**All the patients were evaluated clinically with AOFAS Score and radiologically at 4 weekly intervals for up to 6 months. **Results:** Mean time to union was 17.5 weeks. All fractures united with acceptable alignment and angulation. Two cases of superficial infection were noted, with two cases of joint stiffness. Mean AOFAS score was 90 at a 6 months follow-up. We report satisfactory outcomes with the use of the distal tibia locking plate in treatment of distal tibial fractures. There were only 4 cases with fair results and none of the case had poor result.

Conclusion: At the end of our study we conclude that proximal tibia plate with either open or MIPPO technique is treatment of choice for various distal tibia fractures.

keywords: pilon fracture, MIPPO-minimally invasive percutaneous plate osteosynthesis, distal locking tibia plate, American Orthopaedic Foot and Ankle Score (AOFAS)

Introduction

The management of Distal tibia fractures has always remain controversial for orthopaedic surgeons. Not only are these fractures relatively common, but they are often difficult to treat.^{1,2} The subcutaneous location of the anteromedial surface of the tibia means that severe bone and soft tissue injury is not infrequent, and there is a high incidence of open fractures compared with other long bones.^{3,4} There is a considerable debate regarding the best method for treating distal tibial fractures. In the past close reduction and casting followed by functional bracing were the prime modalities for treating the open and close tibial fractures. Frequent soakage in cast, inaccessibility of dressing, breakage of cast, knee and ankle stiffness and high chances of delayed and non-union produced discouraging results leading to a wave of new methods to treat these fractures effectively.⁵ These complications also place a considerable strain on the health services of our country.

Some surgeons treat the fracture based on fracture pattern and level of the fracture, mostly on external fixation if soft tissue injury is found, whereas others use predominately plate fixation and some prefer nailing techniques.⁶ The interest in internal fixation has centered on the use of AO plates which have been well documented by Thunold and Roksendoahl in late part of twentieth century.

AO plate was extremely useful for closed fractures. Many surgeons have treated open fractures by immediate wound debridement, rigid fixation by plate and some sort of soft tissue coverage.⁷ The indications of plating were preformed and restricted. Its use in high velocity comminuted fracture and segmental fractures were questionable. Open reduction, drainage of fracture hematoma, poor soft tissue coverage because of subcutaneous location of tibia have decreased its popularity among orthopaedic surgeons around the globe. Indirect reduction was introduced in the 1988 by Mast et al. and others. It was an attempt to decrease surgical dissection by relying on ligamentotaxis, blind repositioning of fragments, reduction aids such as the distracter and other methods to maintain soft tissue integrity and preserve bony perfusion.⁸ In the 1990s, Krettek et al. popularized MINIMALLY INVASIVE PERCUTANEOUS PLATES OSTEOSYNTHESIS TECHNIQUES using conventional implants placed through small incisions and submuscular (subcutaneous) tunnels. With MIPPO method rate of delayed union and infection rate is come down.⁹

Aims and objectives

- To study the short term results of distal tibia fractures fixed with distal tibia plate with open reduction or MIPPO techniques

- To study the factors affecting the results of surgery
- To compare this results with those in literature

Materials and methods

This study was carried out at Orthopaedic clinics of Shree Sayajirao Gaekwad Hospital. The study was approved by Ethical committee of our University and informed consent was taken from patients. All patients were informed and explained about the injury and their treatment plan.

Study design: Retrospective Observational Study.

Sample size: Based on feasibility criteria

Study population: Patients admitted in wards in the Department of Orthopaedics, Medical College and S.S.G. Hospital, Vadodara.

Investigations: X ray

Period of Data Collection: March'2015 to february'2016.

Outcome parameters: 4 weekly assessment of all operated patients clinically by lysholm knee score and radiologically for up to 6 months.

CRITERIA FOR PATIENT SELECTION

Inclusion Criteria:

1. Adults above age of 18yrs
2. The fractures of the distal tibia with or without intra-articular extension (including lower third fractures of tibia)
3. Closed fractures, fractures with Open grade-I and II wounds were also included.

Exclusion Criteria:

- Pathological fractures
- Open grade III fractures
- Fractures in children
- Old neglected fractures
- Old fractures with implant failure
- Pregnant females

preoperative assessment:

Anteroposterior and lateral radiographs of the leg with ankle joint were taken to determine the fracture pattern and classifying the fractures according to the AO classification for preoperative planning.¹⁰ The patients were stabilized and local soft tissue condition assessed pre-operatively, else the surgery was deferred till the wrinkle sign appeared.

. Temporary immobilization was given by above knee posterior plaster splint. Patient was admitted and calcaneal pin was given in all cases under general anaesthesia and primary debridement and suturing was performed in open fractures.

Surgical technique

Surgery was performed on plain radiolucent table. The affected limb was scrubbed and prepared with savlon. Painting and draping was done under aseptic and antiseptic conditions. Again the reduction was checked in image intensifier and incision was put depending on the fracture and size of implant used. Incisions were anticipated and planned. We used MIPPO technique if close reduction can be achieved and checked under image intensifier. For minimally invasive plate insertion, small incision of 3-4 cm length either vertical or horizontal placed distal to the fracture over the medial aspect of tibia to access the medial malleolus.¹¹ An extraperiosteal, subcutaneous tunnel is created and precontoured locking compression plate for the tibia is then inserted along the tunnel. The plate can be slid under IITV image control in A-P and Lateral views. Drill guide can be used as handle for percutaneous insertion into one of the distal combi holes.

The locking screw didn't provide interfragmentary compression; therefore, any desired compression was achieved with standard lag screws. The articular fractures was reduced and compressed prior to fixation of the distal tibial plate with locking screws.¹²

If a combination of cortex and locking screws had been used, the cortex screw had been first inserted to pull the plate to the bone.

PROXIMALLY: The stab incisions are kept directly over the holes of the plate. Antero-medial approach is used for Open Reduction and Internal fixation with Distal tibia plate.^{2,10} Incision length is decided according to the level of fracture and length of plate to be fixed. Incise the subcutaneous tissues and deep fascia for adequate exposure of the fracture.

manually reduce the fracture with bone holding or pointed clamps, apply k wire to temporary fix it. Then distal tibia plate of sufficient length was chosen so that at least 3 screws can be applied proximal to the fracture of tibia. These plates are precontoured and cortical screws can be applied to flush the plate to the bone.

Patients were followed up clinically and radiologically in the outpatient clinic at monthly

intervals till 6 months. Suture removal was done at 2 weeks. Progressive weight bearing was allowed according to the callus formation assess in follow up radiographs. Full weight bearing was permitted only after clinico-radiological evidence of union. Union was defined as bridging of three of the four cortices and disappearance of the fracture line on the plain radiographs for a patient who was able to bear full weight.^{1,2} Fracture in the process of union but not united at six months was considered as delayed union. At the end of six months, functional outcome score was analysed using the AOFAS score.

Observations and results:

- **Age and sex:** There were 40 patients in our study. With mean age was 41.5 years. There were 30 males and 10 females in our study.
- **Average hospital stay:** Average injury surgery interval was 1.2 weeks(9 days). Average hospital stay was 2.1 weeks(15 days).
- **Mode of injury:** There were 50%(20) patients with injury due to RTA, 27.5%(11) patients were injured due to fall from height, 7.5%(3) had injury due to assault and 15%(6) patients were injured due to fall of weight.

- **Fracture classification**

Fracture pattern		Patients	Percentage (%)
A	A1	10	25
	A2	8	20
	A3	6	15
B	B1	0	0
	B2	5	12.5
	B3	5	12.5
C	C1	4	10
	C2	2	5
	C3	0	0
Total		40	100

- **associated injury:** 18(45%) of our patients had associated fibula fracture. 6 of our patients had head or chest injuries.

- **injury surgery interval**

Interval	Patients	Percentage (%)
< 1 week	24	60
1 - 2 week	12	30
2 - 4 week	4	10
4 - 6 week	0	0
Total	40	100

- Most patients 24(60%) were operated within first week of trauma.
- Delay in the surgery in other patients occurred due to various factors - associated head or chest injury, local site edema or blisters or other medical conditions.

- **Method:** 16 patients were operated with open reduction and internal fixation while 24 patients were candidates for MIPPO technique.

- **TYPE OF PLATE**

Type	Patients	Percentage (%)
Distal Tibial Metaphyseal locking plate	22	55
Clover leaf plate	2	5
Anatomical distal tibia locking plate	16	40

Total	40	100
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Type of plate selection varied according to bone stock, degree of comminuation, level of fracture and age of patients.

- **Time taken for union**

Time in week	Patients	Percentage (%)
12 to 18	20	50
18 to 24	20	50
24 to 30	-	-
Total	40	100

20 (50%) fracture were united between 12 - 18 weeks.

Average time of union 18.65 weeks.

- **Complication**

Complication	Patients	Percentage (%)
Non union	0	0
Implant failure	0	0

Implant loosening	0	0
Joint stiffness (Ankle)	2	5
Infection	1	2.5
Limping	2	5

- **Type of fracture with results**

Type		Excellent	Good	Fair	Poor	No. of Patients
A	A1	10	0	0	0	10
	A2	8	0	0	0	8
	A3	6	0	0	0	6
B	B1	0	0	0	0	0
	B2	4	1	0	0	5
	B3	4	0	1	0	5

C	C1	0	2	2	0	4
	C2	0	1	1	0	2
	C3	0	0	0	0	0
		32	4	4	0	40

All type A fracture pattern had excellent result most probably due to articular surface of ankle joint was not involved.

3(75%) out 4 fair result were fall in Type C AO/OTA classification.

- **Final functional outcome(AOFAS score)**

RESULT	Patients	Percentage(%)
Excellent	32	80
Good	4	10
Fair	4	10
Poor	0	0
Total	40	100

- **Statistics of method of surgery with results**

Method	No. of patients	Mean of AOFAS score	Standard deviation	t value (paired t	P value

				test)	
Open	16	90.68	6.43		
MIPPO	24	91.87	5.58		
Total	40			0.54	0.59

*statistically not significant at $p < 0.01$

There is no significant difference in the results whether we use open reduction or MIPPO technique.

Discussion

We have also compared this study with international study Wang Cheng, Ying li & Wang Manyi Traumatology department, Peking University. Clinical Medical College, Beijing Jishvitan Hospital, Beijing, China.¹³

which shows comparable results.

Parameter	Our study	Wang cheng study(30 cases)
Mean age	41.5 years	39.3 years
Sex		
Male	75%	60%
female	25%%	40%
Type of fracture		
A	60%	53.3%
B	25%	20%
C	15%	26.6%
Type of plate used		
Distal tibia metaphyseal	55%	AO-distal tibia locking plate in all cases
Clover leaf plate	5%	
Anatomical distal tibia plate	40	
Average time taken for union	17.5 weeks	17.93 weeks
Implant failure	0	1 case
Results		
Excellent	80%	66.66%

Good	10%	26.66%
Fair	10%	3.33%
poor	0	3.33%

With the introduction of locking plates, many limitations of conventional plating have been overcome. The angle stable locking screws allow secure fixation of the opposite condyle with a single plate thus avoiding extensive soft tissue dissection. Contact area between plate and bone is minimal thus preserving blood supply of bone.¹⁴

Our study also shows that there is no significant difference in results between MIPPO or open reduction technique. We had 26(65%) patients with associated injury, out of which ipsilateral lower limb injury comprise maximum 8(20%) number of patients. Thus the average injury surgery interval in the study was 1.2 weeks(9 days). While average hospital stay was 2.1 weeks(15 days). We have achieved 100% fracture union rate in our study.

There was only one case of early post operative infection, which was healed with antibiotics at final follow up.

The average time taken for union in our study was 17.5 weeks.

Most of our patients had no restriction of knee range of movement, 36(90%).

Most of our patient, 36(90%), can squat and sit crossed leg with ease and can walk without limp and support.

It gives advantage to achieve good articular congruity in intra articular fractures which gives excellent ankle range of movement.^{15,16}

By MIPPO distal tibia plate in severe comminuted fractures, biology of fracture site remain unchanged so, good healing of fracture occurs in minimal time.¹⁷

Complication like pin tract infection seen with external fixation, ilizarov fixator¹⁸ and unstable reduction seen with tibia interlock nail or ender's nail in distal tibia fractures not seen with use of this plate.

Conclusion

Thus, it is concluded from the study that open reduction & MIPPO distal tibia plating is an excellent mode of treatment for fractures of distal tibia, which consistently gives long term good results.

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USE OF TINCTURE BENZOIN SEAL IN POST OPERATIVE WOUND COVER.

Type of article: Original Article

Title of the article: Use of Tincture Benzoin Seal in post operative wound cover

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Abstract:

Context: A wide range of dressings and antibacterial solutions are available.

Aims: The objective of the study was to evaluate the outcome of post operative wounds after use of tincture benzoin seal and assess its efficacy, safety and cost effectiveness. The results were compared with the conventional povidone iodine adhesive dressing.

Settings and Design: A prospective study was conducted to evaluate the role of tincture benzoin seal dressing in post-operative wound care.

Methods and Material: Fifty patients were randomly selected for tincture benzoin dressing and fifty patients were given conventional gauze dressing post operatively.

Statistical analysis used: Data was analysed and standard error of difference of proportion was calculated to assess difference in wound infection and skin reaction.

Results: Statistically no difference was found in the incidence of wound infection between the both groups (S.E. = 0.45, p = 0.05, C.I. = 1.96). Patients with conventional gauze adhesive dressing had more incidence of skin reaction.

Conclusions: Tincture benzoin seal is as effective as conventional dressings for post operative wound cover. It is a safe and cost effective alternative dressing and has excellent patient tolerance.

Key-words: Tincture Benzoin Seal, Post operative, Wound cover

Key Messages: Tincture benzoin seal dressings can be used for clean and clean contaminated post operative wound care for adequate wound healing.

Introduction –

In 1867, Lister had introduced antiseptic dressings by soaking lint and gauze in carbolic acid.¹

Since then, various types of dressings have undergone modifications to improve wound care, fasten the healing process and reduce the bacterial contamination.

In our study, we have evaluated the role of tincture benzoin seal dressing in post operative wound care and compared the outcome with that of conventional gauze dressing with povidone iodine solution.

Materials and methods –

The present study is a prospective study of 100 patients conducted at tertiary care hospital and research centre. The protocol of the study was submitted to the ethics committee of the hospital and approved by the same. This study was conducted for a period of one year. Study comprised of hundred patients undergoing surgery. Fifty patients were randomly selected for tincture benzoin dressing and rest fifty were given conventional gauze dressing post operatively.

Criteria for eligibility:

- Patients undergoing elective and emergency cases
- All age groups were considered

- Type of surgical wound :1) clean (no viscus opened)

2) Clean contaminated (viscus opened but minimal spillage)²

These patients were posted for surgery after taking detailed history and all investigations done as required for surgery. All the patients with diabetes were evaluated for blood sugar levels and taken for surgery after normalising the blood sugar levels. Appropriate theatre technique and discipline followed. Antiseptic baths were given and optimal scrubbing done. These patients were given appropriate antibiotic prophylaxis at induction of anaesthesia as considered optimal. At the of surgery, fifty patients were randomly selected and given tincture benzoin seal over surgical wound. In these patients, surgical wound was covered with a thin layer of sterile cotton which is then dabbed with another cotton soaked in tincture benzoin. This is allowed to dry for two-three minutes. Patients were then evaluated after forty-eight hours for soakage and skin excoriation. Patients were assessed for ambulation.

Fifty patients in control group were given conventional dressing. In these patients, povidone iodine solution was applied over surgical wound and covered with a layer of gauze. Adhesive plaster was then applied over this dressing. Dressing was opened after 48hrs and wound was examined for any discharge or reaction.

All the data was tabulated and statistical analysis was conducted by SPSS 16.0 version. Standard error of difference of proportion was calculated. Comparison between study and control groups was done to assess level of safety, ease to use, cost effectiveness and patient compliance. The incidence of wound infection, skin reaction and level of ambulation between the study and control groups was compared.

Result –

In this study, hundred patients were selected as per criteria. Fifty patients were given post operative wound cover with tincture benzoin seal and fifty patients were given conventional

dressing. The observations and results of our study were tabulated and analysed. Out of fifty patients in study group, two patients developed wound infection while in control group three patients developed wound discharge.

Table1: Incidence of wound infection in both the groups

TYPE OF DRESSING	WOUND DISCHARGE PRESENT	WOUND DISCHARGE ABSENT
TINCTURE BENZOIN SEAL	2	48
CONVENTIONAL ADHESIVE DRESSING	3	47

In study group, no patient developed skin reaction, while ten patients in control group developed skin reaction. It was observed, that the incidence of skin reaction with conventional dressing was 20%.

Table 2: Incidence of skin excoriation and blistering in the two groups.

TYPE OF DRESSING	SKIN REACTION PRESENT	NO SKIN REACTION
TINCTURE BENZOIN SEAL	0	50
CONVENTIONAL DRESSING	10	40

The efficacy of both the dressings in preventing wound infection was assessed statistically.

There was no statistical difference in wound infection between the two groups. In our study, tincture benzoin seal dressing was found to be as safe as conventional dressing in preventing wound infection.

Incidence in skin reaction was compared statistically by standard error of proportion which revealed significant difference. Patients with conventional gauze adhesive dressing had more incidence of skin reaction.

Discussion

A surgical wound is a cut made in the skin during an operation. These wounds are usually closed with sutures, clips or skin glues to bring the skin edges together to seal. Following this the wound is covered or dressed. Various types of dressings are available to enable appropriate wound care. Wound dressings are an important aspect of post-operative care in surgery. The object of proper care is to minimise the possibility of infection and scarring. Purpose of a dressing is to:

- Absorb any leakage or smell from the wound
- Provide ideal conditions for healing
- Prevent infection
- Protect the area until the wound is healed
- Prevent the clips or stitches catching on cloth

An ideal dressing plays an important role in wound healing³. Most surgical wounds heal without causing any problems. However, one of the most common complications encountered with surgical wounds is wound infection. There are various factors which influence wound healing. These include age of the patient, nutritional status, infection, blood supply, position of wound and technique of wound closure.⁴

Various types of dressing are available which more or less meet the criteria (requirement) of an ideal post operative dressing. These may be broadly classified as moist and dry, adhesive and non-adhesive dressings. A number of antibacterial products are available. Topical antimicrobial agents have been used in wound care since thousands of years. During the 19th century the discovery of chemical preservatives and disinfectants⁵, as well as a better understanding of the nature of infection and inflammation, has led to increased control of wound infection These

include iodine (povidone iodine), tincture benzoin solution, alcohols, boric acid, chlorhexidine gluconate, sodium bicarbonate(5%), acriflavin⁶, sodium hypochlorite (Dakin's solution), triclosan⁷.

In our study we have evaluated the role of tincture benzoin cotton seal dressing in post operative wounds and compared the outcome with that of conventional gauze adhesive dressing.

Benzoin is a compound naturally derived from plants referred to as gums or balsams⁸. Its a balsamic oleo resin which is mixture of resins and volatile oils⁹. Compound tincture of benzoin is made up of four naturally occurring resins: benzoin, alo, storax and tolu balsam in alcohol which is derived from bark of trees of species styrax benzoin¹⁰. Tinctue of benzoin consists of 10% benzoin in alcohol¹¹.

Table 3: Composition of tincture of benzoin.

SUBSTANCE	QUANTITY(%)
Benzoin	10
Aloe	2
Storax(styrax)	8
Tolu balsam	4
Alcohol 95% q.s.ad	

Compound tincture of benzoin has been used since 15th century in Egyptian and Greek times as a balsam¹². It has both fungicidal and bacteriostatic properties¹³. Alcohol and benzoin both hold anti septic properties. It also adheres well to skin and mucus membranes. It can be used easily to dress difficult areas like angle of mouth, peri anal areas or nipples^{11,12}. It has been used as a skin toughening agent and to help prevent blister formation^{14,15}. Tincture benzoin helps to

protect vulnerable skin and also defends from further damage. Since ages it is used as small wound dressing. It is technically a “medical varnish”, forming a sealing “film” to protect wounds from invasion of bacteria. This compound is fluid impermeable and physically prevents drying of skin, retaining suppleness and flexibility.

Conventionally surgical wound is covered by gauze soaked with povidone iodine and applied with adhesive tapes. Povidone iodine is a polyvinyl pyrrolidone surfactant/iodine complex (PVP-I) ¹⁶. It is one of the most accepted antibacterial solution and widely used in post operative wound care ¹⁷.

In our study, fifty patients were given tincture benzoin cotton seal post operatively while fifty patients were given adhesive gauze iodine dressing. It was observed that two patients with tincture benzoin seal developed wound infection while three patients in the other group developed wound discharge. In both the groups, there was no significant difference in rate of wound infection. Both the dressings were found to be equally safe for post operative wound care.

Patients in both the groups were examined for skin reaction around the wound due to dressing. It was observed that ten patients in control group developed skin reaction and excoriation due to adhesive tapes which was not seen with tincture benzoin seal (Figure 1). It was observed that post operative discomfort due to dressing was much less in patients with tincture benzoin seal. They were ambulated faster than those with bulky conventional dressings. Post-operative dressing of wound with tincture benzoin seal was found to be more cost effective. It was found to be more durable and stayed over wound for a longer period as compared with the other group. It was easy to evaluate for presence of any wound discharge in case of tincture seal as there was no need to open the dressing as with conventional dressings. It was also observed

that patients with conventional dressing experienced pain while removal or change of dressing which was not the case with study group.

Povidone iodine soaked with gauze sometimes forms a bulky dressing. Moreover, adhesive tape is known to cause skin reaction and blistering at surgical wound site. Most of the times, patient complain of itching and erythema. This has lead to the need of a post operative dressing which can provide appropriate wound care and also prevent these complications.

Choice of dressing has a major impact on healing of post-operative wound and prevention of infection. With the evolution of wide range of antiseptic solutions and availability of various types of dressings, it has become essential to provide better wound healing with better patient acceptance. Tincture benzoin dressings have been used worldwide since ancient times. As evaluated in our study, it can be used for clean and clean contaminated post operative wound care for adequate wound healing.

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Legends:

Figure 1: Erythema and blistering due to conventional adhesive dressing.



Special thanks Dr Bosania

9

COMPARISON OF ANATOMICAL LANDMARK GUIDED TWO DIFFERENT APPROACH FOR INTERNAL JUGULAR VENOUS CANULATION IN TERTIARY CARE HOSPITAL.A RETROSPECTIVE RANDOMISED STUDY.

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ABSTRACT:-**BACKGROUND:-**

There are various approaches for internal jugular venous(IJV) canulation. Anterior approach is used commonly but it is with incidence of complications like carotid artery puncture, haematoma and pneumothorax. With posterior approach there are less incidence of above complications.

AIMS OF STUDY:-

To compare both approaches for IJV canulation in terms of procedure and complications.

MATERIALS AND METHODS:-

For both approaches 100 adult patients are randomly allocated and number of attempts, time to identify vein, duration of canulation, ease of threading, carotid artery puncture, haematoma formation are noted. Complications in form of haemothorax, pneumothorax, catheter displacement and thrombophlebitis are noted.

CONCLUSION:-

Posterior approach is better than anterior approach.

INTRODUCTION

Central venous canulation is a vital intervention in critically ill patients, patients of major elective and emergency surgeries, cardiac surgeries. Right internal jugular vein is commonly used for central venous canulation. There are various indications of IJV canulations.

- Continue haemodynamic monitoring.
- Administration of drugs likely to induce phlebitis.
- Hypotensive and hypovolemic patient to administrate vasopressors and volume expanders.
- Oedematus patients who have no peripheral vein.
- In case of extensive burns.
- For total parenteral nutrition.
- For haemodialysis.

There are various approaches for IJV canulaion. Among them anterior approach is practiced worldwide, because of easy identification of landmarks, palpation of carotid artery. Even early learners can be trained for this approach but there are limitations of this approach as there are chances of major complications like accidental carotid artery puncture, haematoma formation and chances of pneumothorax are more. Posterior approach is less practiced due to some

misconcepts about approaches^{3,4,5}.

L.S.Kumar chawdhari et.al⁶ shows that access time and duration of canulation were significantly less with posterior approach than with anterior approach.

Mohan chandralekha et al⁷ also shows that there are less incidence of complications with posterior approach.

V.P.chandrasekhran et al⁸ showed by colour doppler that anatomical variations of IJV to CCA permits less chances of arterial puncture with posterior approach.

Present study was carved to compare both approaches for IJV insertion in terms of ease of insertion, time of insertion, number of attempt, ease of threading, number of complications, outcome.

MATERIAL AND METHODS:-

After approval of IRB, 100 adult patients of ASA grade I & II were enrolled randomly in the study groups.

Group I - Anterior approach – 50 patients

Group II - Posterior approach – 50 patients

Exclusion criteria:-

- SVC syndrome
- Infection at site of canulation
- Patients with Coagulopathy
- Patients with carotid disease
- Prior neck contracture
- Recent canulation of IJV

Procedure:- After proper inform consent to patient and relative, the patient is placed in supine position with 20 degree head down position⁴ and basic monitor like SPO₂, ECG and NIBP are attached. Head is turned to opposite side and support (sandbag) under shoulder is put. Under sterile technique two heads of sternocleidomastoid, carotid artery, external jugular vein and suprasternal notch are identified^{1,2}.

Anterior approach:- Near apex of triangle skin wheal raised with 1 ml of lignocaine 2%. Skin puncture is done at 30 degree to skin with needle. Direction of needle towards ipsilateral nipple, with constant aspiration, needle advanced until 2 tissue pops are felt at peravertebral fascia and vein wall. Position of vein is confirmed by dark blood aspiration. Vein is canulated by seldingers technique. Canula hub is suture with skin.

Posterior approach:- The point where EJV crosses the posterolateral border of sternocleidomastoid muscle is entry point³. Skin wheal is raised at this point with 1 ml of lignocaine 2%. The muscle is lifted and needle advanced 30 degree to skin toward suprasternal notch, rest of procedure is same as anterior approach.

Parameters observed during procedure:-

- No. of attempts to identify vein.
- Time for canulation.(skin puncture to end of threading, recorded by stopwatch.)
- Ease of threading.
- Carotid artery puncture.
- Haematoma formation.

Parameters observed post procedure:-

- pneumothorax
- haemothorax
- catheter displacement
- thrombophlebitis

Statistical analysis:-

Statistically data expressed in mean+SD. Quantitative analysis was compared with student T-test. P value < 0.05 statistically significant and < 0.001 highly significant.

DISCUSSION

This study compares widely popular technique of anterior approach to IJV insertion with posterior approach. In posterior approach entry point of needle is higher up in the neck, so that proper length of vein for canulation would be available and chances of complications like haemothorax, pneumothorax are avoided.

TABLE-1:-DEMOGRAPHIC DATA

Parameter	Group-I (n=50)	Group-II (n=50)	P value
Age	40.18+15.33	42.19+12.78	NS
Gender(M/F)	32/18	34/16	
BMI	23.68+3.78	24.33+3.92	NS

TABLE-2:-NO.OF ATTEMPTS

NO	Group-I (n=50)	Group-II (n=50)
1	24(48%)	42(84%)
2	16(32%)	6(12%)
3	5(10%)	2(4%)
4	5(10%)	-

TABLE-3:- RESULTS

Results	Group-I (n=50)	Group-II (n=50)	P value
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Time to identify IJV (Min)	1.12+0.42	0.16+0.45	< 0.0001
Duration of canulation (Min)	3.84+0.26	2.12+0.52	< 0.0001
Ease of threading (Yes/No)	36/14	42/8	
Artery puncture	5	2	
Haematoma	2		

TABLE-4:- COMPLICATIONS

Parameters	Group-I (n=50)	Group-II (n=50)
Pneumothorax	4	-
Haemothorax	-	-
Catheter displacement	6	3
Thrombophlebitis	7	3

RESULTS

Both groups are comparable in demographics. When compared to anterior approach No. of attempts are less in posterior approach. In anterior approach group only 48% of patients are canulated in 1st attempt where as in posterior approach group 84% are canulated in 1st attempt.

Time to identify vein was quite less in posterior group 0.16 second(mean) compared to 1.12 second(mean) in anterior group.

Ease of threading was more in posterior group where as carotid artery puncture incidence was also less in posterior group.

Post procedure complications are also less in posterior group. Wisheart et al. Reported a case of injury to ascending cervical artery by posterior approach. We did not face these type of complication.

2 cases of posterior approach canulation done successfully in 1st attempt in whom we have tried 1st anterior approach which was failed as patients body mass index were borderline and who were obese.

Lamkinsi et al⁹ shown posterior approach is more efficient in procedure and less incidence of complications.

Brown et al¹⁰. reported a case of chronic haematoma after IJV canulation which require surgical removal. In our study haematoma resolved in 3 hours spontaneously after applying continue pressure, so no need of surgical intervention.

Arnold et al¹¹. described bilateral pneumothorax and subcutaneous emphysema as a complication and cook FL et al described tension pneumothorax after IJV canulation under GA but we have not encountered such complication.

CONCLUSION

In nutshell posterior approach is more beneficial than anterior approach in terms of ease of insertion, less number of attempts, ease of threading, less incidence of complications. Even it is beneficial in obese patients.

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10

A STUDY OF PROXIMAL TIBIA FRACTURES TREATED WITH PROXIMAL LOCKING TIBIA PLATE WITH OPEN REDUCTION AND MIPPO TECHNIQUE

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ABSTARCT

Background: Owing to the increase in vehicular accidents and industrial mishaps, high velocity trauma produces tibial fractures in increasing numbers. There is a considerable debate regarding the best method for treating proximal tibial fractures as these fractures can be quite

challenging to manage. In present study we have treated various proximal tibial fractures with proximal locking tibia plate either by open reduction and internal fixation or using MIPPO technique. **Materials and methods:** All the patients were evaluated clinically with Lysholm Knee Score and radiologically at 4 weekly intervals for up to 6 months. **Results:** The average age in our study was 42.5 years. The average time for union was 16.2 weeks. There were only 2 cases with fair results and none of the case had poor result.

Conclusion: At the end of our study we conclude that proximal tibia locking plate through lateral approach either open or mippo technique is treatment of choice for various close proximal tibia fractures.

keywords: tibia plateau, MIPPO-minimally invasive percutaneous plate osteosynthesis, proximal locking tibia plate

Introduction

Among all the fractures in the body, tibia is the single largest bone that is commonly involved in injuries. Owing to the increase in vehicular accidents and industrial mishaps, high velocity trauma produces tibial fractures in increasing numbers.¹ By its location and by being subcutaneous in most of its length tibia fractures tend to be open very commonly. Fractures of the proximal tibia can be quite challenging to manage. They are notoriously difficult to reduce, align and stabilize, and are prone to develop wound complications and infections. As these fractures involve a major weight bearing joint, they result in functional impairment. To preserve normal knee function, it is must to maintain joint congruity, preserve the normal mechanical axis, ensure joint stability and restore full range of motion especially in Indian culture where squatting and sitting cross legged is must as routine. There is a considerable debate regarding the best method for treating proximal tibial fractures. In the past various options such as POP casts, functional braces, tibia nail, external fixator, hybrid fixators were tried, each of them have their own shortcomings.² The introduction of proximal locking tibia plates has added a new dimension in this treatment, which has become quite popular.

Aims and objectives

- To study the short term results of tibial plateau and upper third tibia fractures fixed with proximal tibia plate
- To study the factors affecting the results of surgery
- To compare this results with those in literature

Materials and methods

This study was carried out at Orthopaedic clinics of Shree Sayajirao Gaekwad Hospital. The study was approved by Ethical committee of our University and informed consent was taken from patients. All patients were informed and explained about the injury and their treatment plan.

Study design: Retrospective Observational Study.

Sample size: Based on feasibility criteria

Study population: Patients admitted in wards in the Department of Orthopaedics, Medical College and S.S.G. Hospital, Vadodara.

Investigations: X ray

Period of Data Collection: March'2015 to february'2016.

Outcome parameters: 4 weekly assessment of all operated patients clinically by lysholm knee score and radiologically for up to 6 months.

CRITERIA FOR PATIENT SELECTION

Inclusion Criteria:

- The fractures of the proximal tibial metaphyseal, metaphysiodiaphyseal with or without intra articular extension (including upper third fractures of tibia)

- Closed fractures, fractures with open grade I and open grade II are included

Exclusion Criteria:

- Pathological fractures
- Open grade III fractures
- Fractures in children
- Old neglected fractures
- Old fractures with implant failure
- Pregnant females

preoperative assessment:

Anteroposterior and lateral radiographs of the thigh and leg including the knee joint were taken to determine the fracture pattern and classifying the fractures according to the Schatzker and AO classification for preoperative planning.^{2,3} The patients were stabilized and local soft tissue condition assessed pre-operatively, else the surgery was deferred till the wrinkle sign appeared.⁴ patient was given above knee slab and skeleton traction preoperatively with limb elevation.

Surgical technique

Surgery was performed on plain table or fracture table in supine position. The affected limb was scrubbed and prepared with savlon. Painting and draping was done under aseptic and antiseptic conditions. Again the reduction was checked in image intensifier and incision was put depending on the fracture and size of implant used. Incisions were anticipated and planned. We used MIPPO technique if close reduction can be achieved and checked under image intensifier. Medial or lateral approach were determined according to fracture pattern.

For anterolateral approach identify Gerdy's tubercle. Make a straight incision about 5cm in length starting posterior to Gerdy's tubercle and running distally and anteriorly.⁶ . It should be sufficient in length so that minimum of 3, 6.5 mm cancellous screws can be negotiated above the fracture.^{7,10}

For anteromedial approach 5 cm incision put on medial condyle tibia and subcutaneous tunnel prepared.¹⁰

DISTALLY: The incisions are kept directly over the holes of the plate. For lateral or medial approach the distal incision is kept just lateral or medial to the shin of tibia over the lower end

of the plate accordingly. Tibialis anterior muscle is stripped off from the bone if plate was applied laterally.¹¹

For open reduction we just combine these two incisions manually reduce the fracture with bone holding or pointed clamps, apply k wire to temporary fix it. Then proximal locking tibia plate of sufficient length was chosen so that at least 3 screws can be applied distal to the fracture of tibia. These plates are precontoured and cortical screws can be applied to flush the plate to the bone.^{12,13}

Patients were followed up clinically and radiologically in the outpatient clinic at monthly intervals till 6 months. Suture removal was done at 2 weeks. Progressive weight bearing was allowed according to the callus formation assess in follow up radiographs. Full weight bearing was permitted only after clinico-radiological evidence of union. Union was defined as bridging of three of the four cortices and disappearance of the fracture line on the plain radiographs for a patient who was able to bear full weight. Fracture in the process of union but not united at six months was considered as delayed union. Nonunion was defined as a fracture that did not heal within a year. At the end of six months, functional outcome score was analysed using the Lysholm's knee score.¹⁴

Observations and results:

- **Age and sex:** There were 40 patients in our study. With mean age was 42.5 years. There were 32 males and 8 females in our study.
- **Average hospital stay:** Average injury surgery interval was 1.6 weeks(11 days). Average hospital stay was 2.7 weeks(18 days).
- **Mode of injury:** There were 50%(20) patients with injury due to RTA, 20%(8) patients were injured due to fall from height, 22.5%(9) had injury due to assault and 7.5%(3) patients were injured due to fall of weight.

- **EXCELLENT RESULT**



Pre-op AP



Pre-op Lateral



Final Follow up AP



Final follow up Lateral

- **Fracture classification**

FRACTURE PATTERN		NO.OF PATIENTS	PERCENTAGE(%)
A EXTRA-ARTICULAR FRACTURE	A1	0	0
	A2	10	25
	A3	8	20
B PARTIAL ARTICULAR FRACTURE	B1	2	5
	B2	0	0
	B3	2	5
C COMPLETE ARTICULAR FRACTURE	C1	10	25
	C2	4	10
	C3	4	10
TOTAL		40	100

- **associated injury:** 18(45%) of our patients had associated fibula fracture. 6 of our patients had head or chest injuries.

- **injury surgery interval**

INTERVAL	PATIENTS	PERCENTAGE(%)
< 1 week	22	55
1 -2 week	15	37.5

2 - 4 week	2	5
4 -6 week	1	2.5
Total	40	100

- Most patients 22(55%) were operated within first week of trauma.
 - Delay in the surgery in other patients occurred due to various factors - associated head or chest injury, local site edema or blisters or other medical conditions.
- **Method:** 24 patients were operated with open reduction and internal fixation while 16 patients were candidates for MIPPO technique.
 - **Approach in surgery:** In 32 patients plate was put on lateral aspect, while in 8 patients it was approached medially.

- **Time taken for union:**

TIME IN WEEKS	PATIENT	PERCENTAGE(%)
<20	19	47.5
20 TO 24	20	50
24 TO 28	1	2.5
> 28	0	0
TOTAL	40	100

- **Complication**

COMPLICATON	PATIENTS	PERCENTAGE(%)
NON UNION	0	0
IMPLANT FAILURE	0	0
IMPLANT LOOSENING	0	0
JOINT STIFFNESS(KNEE)	5	12.5
INFECTION	1	2.5

LIMPING	5	12.5
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- Type of fracture with results**

Type		Excellent	Good	Fair	Poor	No. of patients
A	A1	0	0	0	0	0
	A2	9	1	0	0	10
	A3	5	3	0	0	8
B	B1	1	1	0	0	2
	B2	0	0	0	0	0
	B3	2	0	0	0	2
C	C1	8	2	0	0	10
	C2	3	1	0	0	4
	C3	2	0	2	0	4
		30(75%)	8(20%)	2(5%)	0	40

Most of A type fractures shows excellent results, while type c3 shows 2(50%) fair results out of 4 cases, due to intraarticular involvement.

- Final functional outcome(Tegner lysholm knee score)**

Lysholm knee score	Patients	Percentage(%)
Excellent(>90)	30	75
Good(84-90)	8	20
Fair(65-83)	2	5
Poor(<65)	0	0
Total	40	100

- Statistics of method of surgery with results**

Method	No. of patients	Mean of lysholm	Standard deviation	t value (paired t	P value

		score		test)	
Open	24	90.7	5.39		
MIPPO	16	89	5.71		
Total	40			0.92	0.36*

*statistically not significant

There is no significant difference in the results whether we use open reduction or MIPPO technique.

- **Approach in surgery with results**

Approach	No. of patients	Mean of Lysholm score	Standard deviation	t value (paired t test)	P value
Lateral	32	93.68	3.27		
Medial	8	82.62	10.2		
Total	40			3.03	0.0043*

*significant statistically

Our study shows better outcome when we use lateral approach to insert plate. Medial approach was associated with lower Lysholm knee scores, may be due to no coverage of muscle over medial side and injury to pes anserinus.^{15,16}

Discussion

We have also compared this study with international study of Z Yu, L Zheng Y zheng, J Li, B Ma conducted at Orthopaedic Surgery Centre of the Fourth Military Medical University, Tangdu Hospital, China.¹⁷

which shows comparable results.

Parameter	Our study	Tangdu study(54 cases)
Mean age	42.5 years	45.2 years
Sex		
Male	80%	20%
female	61.2%%	38.8%
Type of fracture		
A	45%	27.7%
B	10%	14.8%
C	45%	38.8%
Approach in surgery		
Lateral	80%	83.3%
Medial	20%	16.6%
Average time taken for union	16.2 weeks	15.4 weeks
Implant failure	0	1 case
Resuts		
Excellent	75%	68.5%
Good	20%	14.9%
Fair	5%	7.4%
poor	0	9.2%

With the introduction of locking plates, many limitations of conventional plating have been overcome. The angle stable locking screws allow secure fixation of the opposite condyle with a single plate thus avoiding extensive soft tissue dissection. Contact area between plate and bone is minimal thus preserving blood supply of bone.

Our study also shows that there is no significant difference in results between MIPPO or open reduction technique. We had 26(65%) patients with associated injury, out of which ipsilateral lower limb injury comprise maximum 8(20%) number of patients. Thus the average injury surgery interval in the study was 1.6 weeks(11 days). While average hospital stay was 2.7 weeks(18 days). We have achieved 100% fracture union rate in our study.

There were no complication at final follow up of our all patients.

There were no infection at final follow up in our study.

The average time taken for union in our study was 16.2 weeks.

Most of our patients had no restriction of knee range of movement,28(70%).

Most of our patient,28(70%), can squat and sit crossed leg with ease and can walk without limp and support.

It gives advantage to achieve good articular congruity in intra articular fractures which gives excellent knee range of movement.¹⁸

By MIPPO proximal tibia plate in severe comminuted fractures, biology of fracture site remain unchanged so, good healing of fracture occurs in minimal time.¹⁹

Complication like pin tract infection seen with external fixation, ilizarov fixator and unstable reduction seen with tibia interlock nail or ender's nail in proximal tibia fractures not seen with use of this plate.

Conclusion

Thus, it is concluded from the study that open reduction & MIPPO proximal tibia plating is an excellent mode of treatment for fractures of proximal tibia, which consistently gives long term good results.

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11

Impact of aging (elderly group) on Red blood cell distribution width (Anisocytosis), a comparative study between young and elderly subject

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Key words: Red blood cell Distribution Width, elderly and young group. Anisocytosis.

NSS: National service scheme, RBC: red blood cells

RDW: Red blood cell distribution width, MCV: Mean corpuscular volume, MCH: Mean corpuscular hemoglobin, MCHC: Mean corpuscular hemoglobin concentration RDW-CV: Red blood cell distribution width coefficient variation, RDW-SD: Red blood cell distribution width standard deviation

Abstract:

Back ground:

As this RDW parameter is available since the introduction of automated haematology analyzer; their clinical significance is under way. Increased RDW is found in hepatic, renal, cardiac, endocrinal and many metabolic abnormalities. It is found to be an independent marker of disease and in future we expect some prognostic value also. The most interesting observations are the association of RDW with erythropoietin deficiency and rather more with erythropoietin resistance. In this article we have studied the relation between RDW and aging and the mean value of RDW amongst young group with elderly group of people. Soon more researches will reveal whether the anisocytosis is cause or effect of disease and will be able to reply whether the anisocytosis is independent disease or not. In this article we have try to study the effect of and correlate the age and RDW especially young and elderly group of people.

OBJECTIVE:

To study the Impact of aging on Red blood cell distribution width (RDW) and compare the RDW among young and elderly group

DESIGN:

Cross-sectional comparative study.

SETTING:

Data collected from camps organized by NSS Unit in AMCMET medical college in college and elderly houses in Ahmedabad

Subjects :177 adults 94 young and 83 elderly.

RESULT AND OUTCOME:

COMPARATION OF MEANS AND STARNDARD DEVIATION OF RDW OF YOUNG AND ELDERLY GROUP OF SUBJECTS

OBSEVATION AND RESULTS:

MEAN VALUES OF RDW OF YOUNG N1 GROUP AND ELDERLY GROUP N2 WERE COMPARED AND FOUND THAT AGED GROUP HAD STATISTICALLY SIGNIFICANTLY MORE RDW COMPARED TO YOUNG GROUP.

Conclusion: The study documented the fact that the Red cell Distribution Width is increased statistically significantly amongst elderly group suggesting that there significant anisocytosis is prevailed among elderly aged group of persons . With introduction of computed automated hematology analyzer, RDW is relatively a new hematology parameter and current role of the parameter is under way. RDW is a useful for differential diagnosis of anemia especially Beta thalasemia trait and iron deficiency anemia. It is suggested that RDW is raised even before overt hematological parameter of anaemia and also useful for early detection of anaemia in pregnancy . Studies have shown that raised RDW i.e. anisocytosis is associated with decrease in serum erythropoietin or erythropoietin resistance . As wide a variety of human disorders are found to be associated with anisocytosis so increased RDW behaves as a biomarker itself and may be a potential target of future as independent disease process but more interventional studies are required. RDW is a simple and inexpensive parameter, which reflects hematological risk factors associated with liver, cardiac, lung, renal, endocrinal and metabolic abnormalities including cancer and genetic anomaly such as shortening of telomere length .In Future more researches will reveal RDW as a valuable for many clinical conditions as diagnostic, therapeutic and prognostic marker.

Introduction.

Anisocytosis [“aniso” meaning “unequal”, y associated with poikilocytosis .Previously it was marked as part of peripheral smear examination and also graded like 1+,2+..Though the poikilocytosis is difficult to quantify, the Anisocytosis can be measured in all automated hematology laboratory as red blood cell distributioand “cytosis” which has a reference to cells]is condition in which the red blood cells of a person are found to be of unequal size .It is usualIn width (RDW).The RDW is used along with the indices (MCV, MCH, MCHC) to describe a population of RBCs. Red blood cells distribution wide (RDW) is relatively a new red blood cells and hematology laboratory parameter. High value suggests significant anisocytosis and poikilocytosis i. e. Increased variation in size and shape of Red blood cells. It is associated with

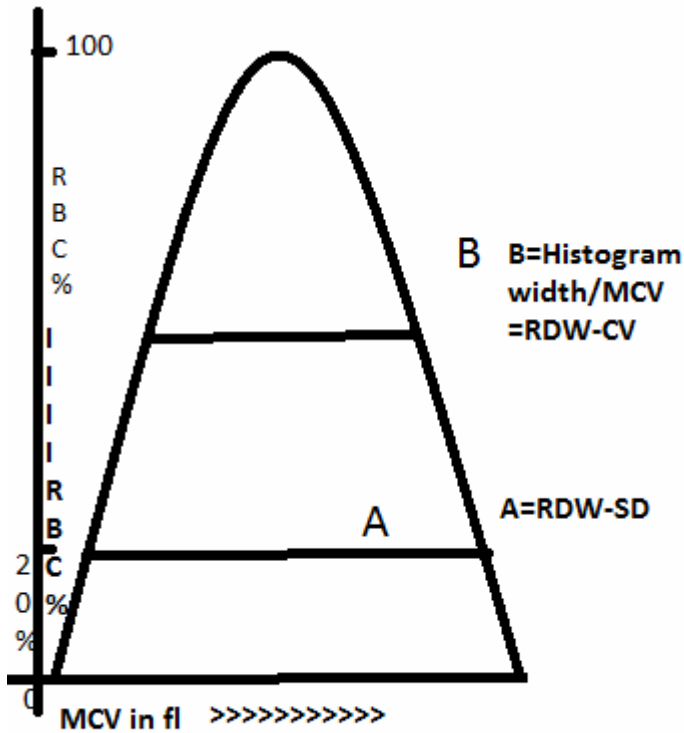
many types of anaemia i. e. Iron deficiency and other nutritional deficiencies anaemias. It is found that increased RDW is observed even before development of anaemia. As this RDW parameter is available since the introduction of automated hematology analyzer ; their clinical significant is under way. Increased RDW is found in hepatic, renal; cardiac, endocrinal and many metabolic abnormalities. It is found to be an independent marker of disease and in future we expect some prognostic value also. The most interesting observations are the association of RDW with erythropoietin deficiency and rather more with erythropoietin resistance. In this article we have studied the relation between RDW and aging and the mean value of RDW amongst young group with elderly group of people. Soon more researches will reveal the whether anisocytosis is cause or effect of diseases and will able to reply whether the anisocytosis is independent disease or not.

Material and method:

The data were collected from subject attended various NSS camp set ups organized by NSS unit AMCMET medical college Ahmedabad . The subjects were divided into two groups 1 N1: group consisting young group was medical students of age 17-19 (Mean age 18.2) and 2 N2: elderly group was residents of elderly houses where the camps were organized. Blood samples were collected and send to hematology auto analyzer instrument which is used to measure red cell distribution width by automated methods to measure red blood cell distribution width (RDW). The RDW measures the anisocytosis, There are two RDW measurements 1]Red cell distribution width - coefficient of variation (RDW-CV), 2] red cell distribution width - standard deviation (RDW-SD).

The RDW-CV is a calculation based on both the width of the distribution curve and the mean cell size. It is calculated by dividing the standard deviation of the mean cell size by the MCV of the red cells and multiplying by 100 to convert to a percentage. A normal range for the RDW-CV is approximately 11.6 – 14.6% (for adults). Because it is a calculation, the RDW-CV is dependent not only on the width of the distribution curve but also the MCV of the red cell population .The RDW-SD is an actual measurement of the width of the red cell distribution curve in femto liters (fL). The width of the distribution curve is measured at the point that is 20% above the baseline. The normal RDW-SD range is 40.0 - 55.0 femto liters fL. Red blood cell distribution width is a way to measure red blood cell volume and size.

See the diagram: The RDW-SD is an actual measure of size. It is derived by finding the width in at the 20% height of the distribution histogram. See the diagram below for a clearer visual explanation of how the number is determined. The RDW-CV is determined by taking the standard deviation of RDW-SD and the mean corpuscular volume (MCV) number. Again, see below for a visual explanation of how this works.



Generally high RDW indicates mixed population of small and large RBCs, young RBCs tend to larger. For example in iron deficiency anemia or pernicious anaemia there is a high variation (anisocytosis) in RBC size (along with variation in shape – poikilocytosis), causing an increase in the RDW. Red cell distribution curves are an integral part of RBC automated hematology analysis and are available on virtually all automated hematology analyzers.

RDW were measured amongst both the young and elderly groups and mean, standard deviation, SEM, p value were measured using Statistical soft were systat /Mystat. p value was considered significant if it is less than 0.05.

Observations and Statistical tests:

Table 1 showing RDW ,mean value and SD among N1 young and N2 elderly group

Gr	N1	N2
N of Cases	94	83
Minimum	12.200	13.200
Maximum	18.400	19.900
Arithmetic Mean	14.129	15.220
Standard Deviation	1.340	1.670

Table 1 showing RDW ,mean value and SD among N1 young and N2 elderly group

N1 young group N2 elderly group

GROUP	N	Mean	Standard Deviation
N1 young	94	14.129	1.340
N2 elderly	83	15.220	1.670

statistics

Difference in Means : -1.092
 95.00% Confidence Interval : -1.542 to -0.642
 Z : -4.756
 p-value : 0.000

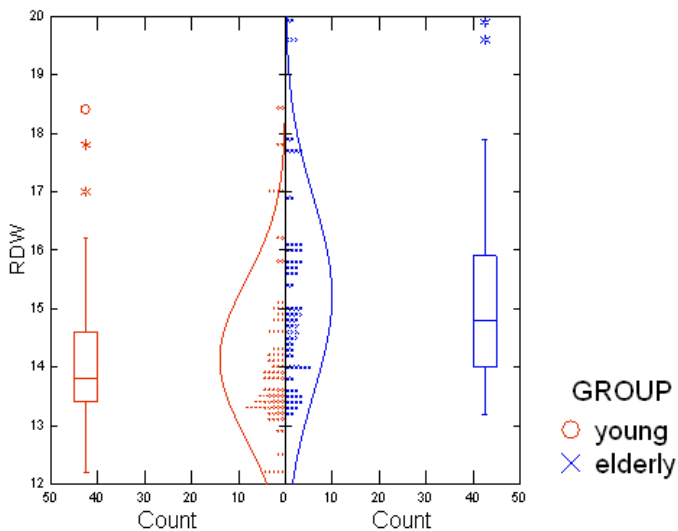
Separate Variance

Difference in Means : -1.092
 95.00% Confidence Interval : -1.545 to -0.638
 t : -4.756
 df : 156.984
 p-value : 0.000

Pooled Variance

Difference in Means : -1.092
 95.00% Confidence Interval : -1.539 to -0.645
 t : -4.821
 df : 175.000
 p-value : 0.000

Two-sample z-test



From the statistical test It was found that RDW was statistically significantly high amongst elderly group compared to young student group.

Discussion:

The study documented the fact that the Red cell Distribution Width is increased statistically significantly amongst elderly group suggesting that there significant anisocytosis is prevailed among elderly aged group of persons .Many researcher i.e.Cheng CK et al , Qiao R et al ,, Lippi G et al , Loprinzi PD et al , Al/s R et al , , Johannes J found relation of RDW with age and gender and RDW found to be increased with age. In context to gender there is no uniform observation .In our study means RDW is high among female compared to male gender but is statistically not significant. With introduction of computed automated hematology analyzer, RDW is relatively new parameter and current role of the parameter is under way. Tony Badrick et al found RDW a useful for differential diagnosis of anemia especially Beta thalasemia trait and iron deficiency anemia. Though many anaemias associated with raised RDW i.e. Iron deficiency ,hemolytic anemia ,early vitamin B12 & folate deficiency ,HbS/Beta Thalassaemia ,microangiopathic hemolytic anemia ,Chronic hepato biliary disease ,hereditary spherocytosis ,Sickle cell anemia. If red blood cell counts are of a normal but raised RDW is still indicate early stage of anaemia and required further investigations. Myelodysplastic Syndrome, formation of irregular sized blood cells is another condition associated with Anisocytosis and increased .

Studies have show that anisocytosis is associated decrease serum erythropoietin Or erythropoietin resistance . As wide a variety of human disorders are associated with anisocytosis so increased RDW behaves as a biomarker of impaired erythropoiesis . Raised RDW is also found to be associated with oxidative stress, inflammation, poor nutritional status, hypertension, and dyslipidemia and many more conditions. Red cell distribution width appears to be a reliable and useful parameter for early detection of iron deficiency during pregnancy. Anisocytosis itself may be a potential target of future as independent disease process but more interventional studies are required .RDW is massively growing interest as a prognostic marker also.But before that age dependent norms are to be established and whether RDW is a cause or effect of disease is also to be established.Interventional studies are required to lower the RDW in Acute and chronic disorders. RDW suggest degree of heterogeneity of erythrocyte volume (conventionally known as anisocytosis). RDW is a simple and inexpensive parameter, which reflects Hematological risk factors associated with liver, cardiac. lung ,renal ,endocrinal and metabolic abnormalities including cancer and genetic anomaly such as shortening of telomere length .Interestingly number of discriminant functions based on the use of the RDW and other RBC parameters have been proposed for the

discrimination of iron deficiency anaemia and Beta thalasemia trait but none has 100% sensitivity and specificity for discrimination between Thal Minor and Iron Deficiency in particular. so to summerise today at present use of RDW and RDW-SD for diagnosis of disease should be used with caution and useful only as a guide, i.e., not diagnostic. But in future more researches will reveal RDW as a valuable routine marker for many clinical conditions as diagnostic ,therapeutic and prognostic purpose .

Conclusion: The study documented the fact that the Red cell Distribution Width is increased statistically significantly amongst elderly group suggesting that there significant anisocytosis is prevailed among elderly aged group of persons . With introduction of computed automated hematology analyzer, RDW is relatively a new hematology parameter and current role of the parameter is under way. RDW is a useful for differential diagnosis of anemia especially Beta thalasemia trait and iron deficiency anemia. It is suggested that RDW is raised even before over hematological parameter of anaemia and also useful early detection of anaemia in pregnancy . Studies have show that raised RDW i.e. anisocytosis is associated decrease serum erythropoietin Or erythropoietin resistance . As wide a variety of human disorders are found to be associated with anisocytosis so increased RDW behaves as a biomarker itself and may be a potential target of future as independent disease process but more interventional studies are r'equired. RDW is a simple and inexpensive parameter, which reflects hematological risk factors associated with liver, cardiac. lung ,renal ,endocrinal and metabolic abnormalities including cancer and genetic anomaly such as shortening of telomere length .In Future more researches will reveal RDW as a valuable for many clinical conditions as diagnostic ,therapeutic and prognostic marker.

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12

REVIEW OF MEDICAL LITTERATURE

Greek and Rome History and mythology in medical literature

Editorial Dr Janardan Bhatt

If one review the medical literature it is full of terms related to Greek and roman history and literature .Hundreds of time one might have heard , read, talked or written one particular term but may be unaware of its Greek or roman origin or relation. Actually some of the terms are very interesting to learn if not taught by now.

Every one know that there are eight cervical vertebrae .The very first vertebra is known as Atlas. **Atlas** in Greek mythology, son of one of the TITANS, famous for his strength. He refused hospitality to PERSEUS, who using the head of MEDUSA, turned him into stone. He became the atlas mountains, forced to support the heavens for ever. Every one must have seen the picture of Atlas carrying whole universe on his back. Similarly atlas vertebra carry the weight of whole head and brain.

since the 16th century, pictures of atlas and his burden have been used as decoration on maps. Accordingly, the word atlas used for a book of maps. similarly every one is familiar with term tendo **Achilles** a very tough tendon attached to gastrocnemius – solius muscle. Its strength and toughness has given the term Achilles a Greatest Greek warrior in the TROJAN WAR the hero of homer’ s ILIAD. When he was an infant, his mother Thetis tried to protect Achilles by bathing him in the magical river styx to make him immortal, but the heel by which she held him remained vulnerable. During the siege of troy, returned to slay the Trojan hero hector, whose corpse he dragged in the dust behind his chariot. Later, Achilles was fatally wounded in the heel

by an arrow from the of hector' s brother Paris. The phrase 'achilles' 'heel' is sometimes used to describe a strong person' s one significant weakness. Aphrodite (AFE-rer- dye- tee) (roman name vanus) Greek goddess of love and beauty, the mother of eros and areneas . in the JUDGMENT OF PARIS, paris chose Aphrodite as the most beautiful goddess, over hera and Athena. Aphrodite was believed to have been born out of the foam of the sea, and is often pictured rising from the water, notably in the painting birth of venus by sandro BOTTICELLI. The morphine is a very popular narcotic analgesic drug .The word is derived from **Morpheus** the God of sleep and dreams in Greek and Roman mythology. When person take the said drug that person is in the arms of morpheus' i.e. is asleep. The Term Pandora' s box is sometime used in surgery when the diagnosis of intra abdominal condition is mysterious . The surgeon had to perform leprotomy to diagnose and treat the condition. Though such incidences are now rare because of widely availability of ultrasono graphy, CT and MRI scanning . The phrase 'a Pandora' s box' means any source of great suffering or trouble, often unsuspected at first .It is said that he PROMETHEUS' theft of fire, zeus sent Pandora box to earth with a box containing a few blessings, but many more evils, such as war and sickness. When she opened the box the evils flew out, to plague mankind; only hope remained. In sexology terms Aphrodisiacs & Erogeous zone derived from Aphrodite and Eros. Aphrodite (roman name vanus) a Greek goddess of love and beauty, the mother of eros and aeneas . in the JUDGMENT OF PARIS, paris chose Aphrodite as the most beautiful goddess, over hera and Athena. Aphrodite was believed to have been born out of the foam of the sea, and is often pictured rising from the water, notably in the painting Birtb of Venus by sandro BOTTICELLI. Eros the greek and romen god of love, and son of Aphrodite associated with all beautiful things. Eros was both playful and cruel, and he fired arrows that produced physical desire in his victims. The word psychiatry and psychology is derived from term Psyche. Psyche is a Beautiful girl in Roman mythology. Venus was so jealous of her beauty that she ordered her son cupid to make psyche fall in love with come one ugly. But cupid himself fell in love with psyche; he visited her every night in the dark and ordered her never to try to see him. One night psyche lit a lamp to look at cupid whilst he was asleep but he awoke and fled. While psyche searched for him, venus treated her cruelly and set her many harsh tasks. Eventually Jupiter made psyche immortal, and she and cupid were married. So these emotional events of the story made a terms dealing emotions i.e. psychiatry and psychology. The term nymphomania is derived from Nymphs. Nymphs young and beautiful female spirits of nature in classical mythology who lived in forests, caves, seas, rivers and springs. They liked dancing and music and were companions of the SATYRS. Any young beautiful or seductive women may be referred to as a nymph. In psychology the term the personality 'narcissism ' suggest the excessive admiration of oneself. The word is derived from Narcissus a Beautiful youth in Greek mythology who fall in love with his own reflection. Because he was unable to tear himself away from the image, he wasted away and turned into the narcissus tree & flower.

Source: Illustrated Dictionary of sciences

13

MESSAGE ON WORLD HEALTH DAY 7th April 2016

Every year, World Health Day is celebrated on 7 April to mark the anniversary of the founding of WHO in 1948. Each year a theme is selected that highlights a priority area of public health. The day provides an opportunity for individuals in every community to get involved in activities that can lead to better health.

The theme for World Health Day 2016 is diabetes.

Background

In 2008, an estimated 347 million people in the world had diabetes and the prevalence is growing, particularly in low- and middle-income countries. India had 69.2 million people living with diabetes (8.7%) as per the 2015 data. Of these, it remained undiagnosed in more than 36 million people.

Diabetes is a chronic disease that occurs either when the pancreas does not produce enough insulin or when the body cannot effectively use the insulin it produces. Insulin, a hormone that regulates blood sugar, gives us the energy that we need to live. If it cannot get into the cells to be burned as energy, sugar builds up to harmful levels in the blood.

Over time, high blood sugar can seriously compromise every major organ system in the body, causing heart attacks, strokes, nerve damage, kidney failure, blindness, impotence and infections that can lead to amputations.

Goal of World Health Day 2016: Scale up prevention, strengthen care, and enhance surveillance of diabetes

The main goals of the World Health Day 2016 campaign aims to:

- Increase awareness about the rise in diabetes, and its staggering burden and consequences, in particular in low- and middle-income countries;
- Trigger a set of specific, effective and affordable actions to tackle diabetes. These will include steps to prevent diabetes and diagnose, treat and care for people with diabetes; and
- Launch the first Global report on diabetes, which will describe the burden and consequences of diabetes and advocate for stronger health systems to ensure improved surveillance, enhanced prevention, and more effective management of diabetes.

There are two main forms of the diabetes. People with type 1 diabetes typically make none of their own insulin and therefore require insulin injections to survive. People with type 2 diabetes, the form that comprises some 90% of cases, usually produce their own insulin, but not enough or they are unable to use it properly. People with type 2 diabetes are typically overweight and sedentary, two conditions that raise a person's insulin needs. It may also be seen during pregnancy.

World Health Day 2016: Key messages

1. The diabetes epidemic is rapidly increasing in many countries, with the documented increase most dramatic in low- and middle-income countries.
2. A large proportion of diabetes cases are preventable. Simple lifestyle measures have been shown to be effective in preventing or delaying the onset of type 2 diabetes. Maintaining normal body weight, engaging in regular physical activity, and eating a healthy diet can reduce the risk of diabetes.
3. Diabetes is treatable. Diabetes can be controlled and managed to prevent complications. Increasing access to diagnosis, self-management education and affordable treatment are vital components of the response.
4. Efforts to prevent and treat diabetes will be important to achieve the global Sustainable Development Goal 3 target of reducing premature mortality from noncommunicable diseases (NCDs) by one-third by 2030. Many sectors of society have a role to play, including governments, employers, educators, manufacturers, civil society, private sector, the media and individuals themselves.

WHO Director-General Dr Margaret Chan Director-General of the World Health Organization make Opening remarks on World Health Day and the launch of the WHO *Global report on diabetes*.. Geneva, Switzerland on 7 April 2016

A warm welcome to all who have joined us, in this room and online, as we celebrate World Health Day.

This is the day, set aside each year, when we focus on a major public health issue to commemorate the establishment of WHO in 1948.

This year, we are highlighting diabetes as an especially challenging disease that deserves much more attention. The impact of this chronic metabolic disease on individuals, families, communities, health systems, and health budgets is staggering.

The concern is universal. Long considered a disease of rich societies, diabetes is now increasing in prevalence everywhere, with the most striking, and devastating, increases seen in the developing world.

Worldwide, the prevalence of diabetes has doubled since 1980. WHO estimates that 422 million adults had diabetes in 2014.

When diabetes is not detected early and not controlled early, the health consequences are dire. Diabetes can damage the heart, blood vessels, kidneys, eyes and nerves. For example, lower limb amputation rates are from 10 to 20 times higher among people with diabetes. In poor populations everywhere, the costs of managing diabetes can be catastrophic, pushing households below the poverty line. The costs are likewise crippling for health budgets and national economies. WHO estimates that, each year, diabetes costs the world nearly \$830 billion in direct medical costs alone.

Diabetes debilitates, but it also kills. Diabetes is responsible for around 1.5 million deaths each year. High blood glucose levels contribute to an additional 2.2 million deaths, mainly by increasing the risk of cardiovascular disease. Many of these deaths are preventable.

The lives of people living with diabetes can be improved by expanding access to essential medicines, including life-saving insulin, and making technologies, such as those needed to measure blood glucose levels, more readily available.

At present, insulin is generally available in only around 23% of low-income countries. In such settings, diabetes patients who depend on insulin for survival pay the ultimate price for this failure to make essential medicines and technologies readily available and affordable.

The 2030 Agenda for Sustainable Development sets a very ambitious target of reducing premature mortality from four noncommunicable diseases, including diabetes, by one third. This is truly ambitious. Against the background of what I have just highlighted, much more needs to be done. Other targets call on countries to reach universal health coverage and ensure access to affordable essential medicines. WHO's own global action plan on NCDs seeks to stop the rise in diabetes and obesity by 2025.

Ladies and gentlemen,

We have a great deal of work to do, but we also have good guidance. Today, we are launching the first WHO Global report on diabetes. This is good guidance.

The report makes an important contribution to our understanding of diabetes and its consequences. Its recommendations are a call to action on multiple fronts.

Data set out in the report underscore the need for action, not only from people living with diabetes, but also from different sectors of government, health care providers, civil society, and the manufacturers of medicines and medical technologies. We also need to engage the system that produces and markets our food.

I invite all of you to do your part. In your personal lives, this means eating healthy foods, being physically active, and guarding against excessive weight gain. Have your blood glucose measured periodically, and strictly follow the advice of your health care provider.

In fact, the diabetes crisis and its huge costs provide one of the most compelling incentives for preventing excess body weight through diet and exercise. This point was strongly underscored by the Commission on Ending Childhood Obesity.

Obesity in childhood can be a direct cause of accelerated onset of diabetes, which was once considered an adult disease. This is no longer the case, as we are seeing more and more cases of diabetes in children and adolescents.

Moreover, the prevention of childhood obesity must start with good nutrition in mothers and fathers even before pregnancy begins.

For governments, reducing the diabetes burden means putting policies in place that promote healthy eating and physical activity throughout the life course. Policies that promote breastfeeding and protect children from the marketing of unhealthy foods and beverages are especially important.

It also means improving the diagnosis and treatment of diabetes by putting in place standard protocols and making the necessary medicines and technologies readily available and affordable.

Since its inception 68 years ago, WHO has drawn on the power of population-wide preventive strategies as a way of lowering morbidity and mortality.

On this World Health Day, diabetes represents a prime opportunity for putting this power to work. The payback will be immense.

Thank you.

Measures needed include expanding health-promoting environments to reduce diabetes risk factors, like physical inactivity and unhealthy diets, and strengthening national capacities to help people with diabetes receive the treatment and care they need to manage their conditions.

"If we are to make any headway in halting the rise in diabetes, we need to rethink our daily lives: to eat healthily, be physically active, and avoid excessive weight gain," says Dr Margaret Chan, WHO Director-General. "Even in the poorest settings, governments must ensure that people are able to make these healthy choices and that health systems are able to diagnose and treat people with diabetes."

Diabetes is a chronic, progressive noncommunicable disease (NCD) characterized by elevated levels of blood glucose (blood sugar). It occurs either when the pancreas does not produce enough of the insulin hormone, which regulates blood sugar, or when the body cannot effectively use the insulin it produces.

Key findings from WHO's "Global report on diabetes"

Among the key findings from the "Global report on diabetes" are:

- The number of people living with diabetes and its prevalence are growing in all regions of the world. In 2014, 422 million adults (or 8.5% of the population) had diabetes, compared with 108 million (4.7%) in 1980.
- The epidemic of diabetes has major health and socioeconomic impacts, especially in developing countries.
- In 2014, more than 1 in 3 adults aged over 18 years were overweight and more than one in 10 were obese.
- The complications of diabetes can lead to heart attack, stroke, blindness, kidney failure and lower limb amputation. For example, rates of lower limb amputation are 10 to 20 times higher for people with diabetes.

- Diabetes caused 1.5 million deaths in 2012. Higher-than-optimal blood glucose caused an additional 2.2 million deaths by increasing the risks of cardiovascular and other diseases.
- Many of these deaths (43%) occur prematurely, before the age of 70 years, and are largely preventable through adoption of policies to create supportive environments for healthy lifestyles and better detection and treatment of the disease.
- Good management includes use of a small set of generic medicines; interventions to promote healthy lifestyles; patient education to facilitate self-care; and regular screening for early detection and treatment of complications.

Global commitments to reduce diabetes

“Many cases of diabetes can be prevented, and measures exist to detect and manage the condition, improving the odds that people with diabetes live long and healthy lives,” says Dr Oleg Chestnov, WHO’s Assistant Director-General for NCDs and Mental Health. “But change greatly depends on governments doing more, including by implementing global commitments to address diabetes and other NCDs.”

These include meeting Sustainable Development Goal (SDG) target 3.4, which calls for reducing premature death from NCDs, including diabetes, by 30% by 2030. Governments have also committed to achieving 4 time-bound national commitments set out in the 2014 UN General Assembly “Outcome Document on Noncommunicable Diseases”, and attaining the 9 global targets laid out in the WHO “Global Action Plan for the Prevention and Control of NCDs”, which include halting the rise in diabetes and obesity.

“Around 100 years after the insulin hormone was discovered, the “Global report on diabetes” shows that essential diabetes medicines and technologies, including insulin, needed for treatment are generally available in only 1 in 3 of the world’s poorest countries,” says Dr Etienne Krug, Director of WHO’s Department for the Management of NCDs, Disability, Violence and Injury Prevention. “Access to insulin is a matter of life or death for many people with diabetes. Improving access to insulin and NCD medicines in general should be a priority.”

Global efforts are underway to make medicines, including for NCDs, more available and affordable. Commitments from world leaders, including the SDGs, the 2011 “UN Political Declaration on the Prevention and Control of Noncommunicable Diseases”, the 2014 UN General Assembly “Outcome Document on Noncommunicable Diseases”, and the work of the UN Secretary-General’s high-level panel on access to essential medicines are aimed at improving affordability and availability of essential drugs for people living with diabetes.

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