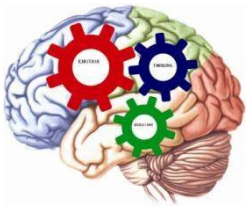

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ANALGESIC & ANESTHETIC PROPERTY OF LEVOBUPIVACAINE COMPARED WITH BUPIVACAINE IN PATIENTS UNDERGOING A SUPRA- CLAVICULAR BRACHIAL PLEXUS BLOCK.

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Abstract:

Back ground: Single injection of supraclavicular brachial plexus block is an effective anesthetic; however it is limited by the duration of action of local anesthetic.Bupivacaine is a long-acting local anesthetic which has been reported to be associated with slower onset time for nerve blockade.

Method: The present study was conducted in random 60 patients posted for upper limb surgery having ASA grade 1 and 2 physical status. The patients were randomly allotted into two groups each having 30 patients. Group R– inj. Levobupivacaine 0.5% 0.8 ml/kg Group B– inj. Bupivacaine 0.5% 0.8 ml/kg. And the effects were assessed .

Observations: There was significant difference in duration of sensory block (<0.05), and analgesia (<0.05) in both the groups.The average duration of sensory block was 630±95.22 minutes in L Bupivacaine group whereas it was 525±.8 minutes in Bupivacaine group which was significant statistically. The average duration of motor blockade was 520±20, minutes in L-Bupivacaine group whereas it was 612±89.41 minutes in Bupivacaine group which was not significant statistically (p<0.05). The average duration of analgesia was 781 minutes in L bupivacaine group as compared to 622 minutes in Bupivacaine group which was statistically significant.

Conclusion: Levobupivacaine is a long acting local anesthetic with a clinical profile similar to that of bupivacaine. In an individual patient, the clinical anesthetic effect from the drug is similar to that of bupivacaine. The better safety profile of levobupivacaine confers an advantage over its racemic parent, Bupivacaine.

INTRODUCTION;

Supraclavicaular brachial plexus block (BPB)[1,2] is used to provide anesthesia and analgesia for upper limb surgery. Single injection of supraclavicular brachial plexus block is an effective anesthetic; however it is limited by the duration of action of local anesthetic.

Bupivacaine[2] is a long-acting local anesthetic which has been reported to be associated with slower onset time for nerve blockade. Because of its long duration of action Bupivacaine is frequently the local anesthetic of choice for regional anesthesia. However lethal arrhythmias, including cardiac arrest, can occur after accidental intravascular injection. Levobupivacaine, the S-enantiomer of bupivacaine is the latest local anesthetic agent introduced into clinical practice. Studies revealed that the R-dextrobupivacaine)and the S-levobupivacaine) enantiomers of bupivacaine possessed anesthetic activity, but the S-enantiomer had significantly less cardiac and neural toxic effects than bupivacaine,14 while still possessing a similar duration of sensory blockade.2,15,16 Levobupivacaine has been shown to be safe

and effective for epidural and spinal anesthesia15 and blockade of the brachial plexus.15,17,18 This study was conducted to compare sensory and motor block onset, duration and efficacy of block with Levobupivacaine 0.5% versus Bupivacaine 0.5% and assess severity of complications if they develop.

AIMS AND OBJECTIVES

To study and compare 0.5% Levobupivacaine and 0.5% Bupivacaine, 0.8ml/kg in brachial plexus block by supraclavicular approach for elective upper limb surgery and to compare for following criteria,

1) Onset of sensory blockade
2) Onset and quality of motor blockade
3) Duration of sensory and motor blockade
4) Duration of post-operative analgesia
4) Adverse effects like nausea, vomiting, hypotension, dysrhythmias, convulsion, pneumothorax, pruritus, jerky movements, horner'ssyndrome, hypersensitivity reaction to any drug

FORMATION OF BRACHIAL PLEXUS[5]

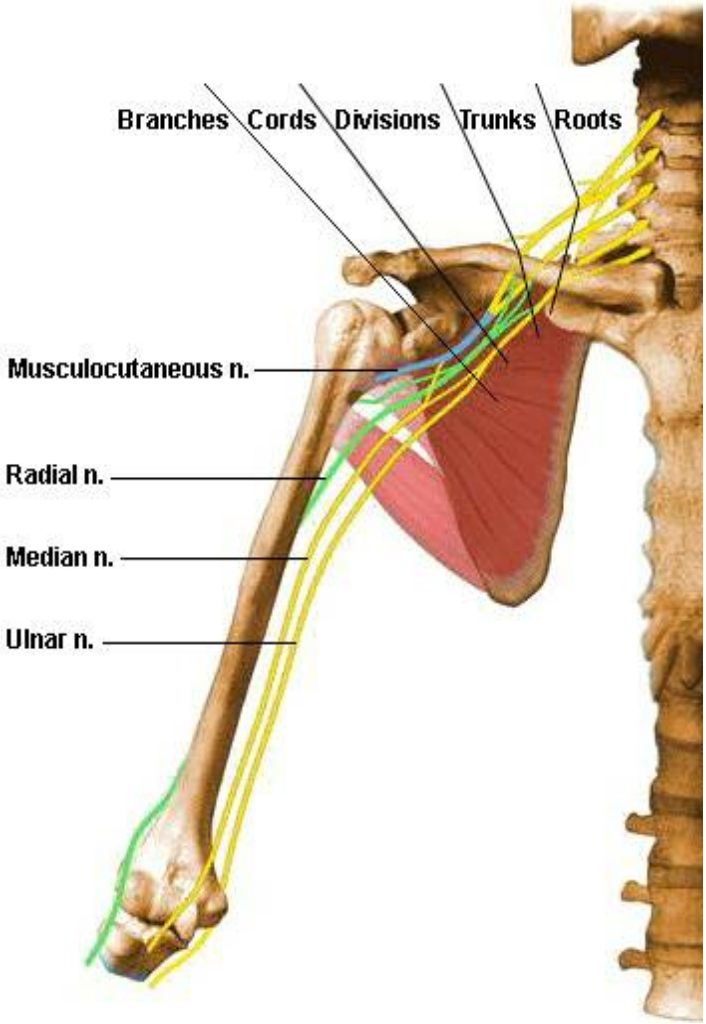

Fig. showing formation of brachial plexus from nerve roots.

Subclavian perivascular by technique of winni, is carried out at the level where the three trunks cross the first rib; a point where the plexus is reduced to its fewest component parts, so at this level a smaller volume of local anesthetic is required to fill the space and block all of the components contained therein than with any other technique, which is the reason for the popularity of this technique and for its high success rate.

PHARMACOLOGY: Local anaesthetics (LA) prevent transmission of nerve impulses (conduction blockade) by inhibiting passage of sodium ions through ion selective sodium channels in nerve membranes, which is reversible.

The minimum concentration of local anaesthetic necessary to produce conduction blockade of nerve impulses is termed the Cm. Nerve fibre diameter influences Cm with larger nerve fibres requiring higher concentration of local anaesthetic for production of conduction blockade. An increased tissue pH or high frequency of nerve stimulation decreases Cm. Systemic toxicity of local anaesthetic is due to an excess plasma concentration of the drug.

CNS toxicity

In causes restlessness, vertigo, tinnitus and difficulty in focusing occurs initially. Further increase in concentration results in slurred speech and skeletal muscle twitching. Skeletal muscle twitching is often first evident on the face and extremities and signals the imminence of tonic-clonic seizures.

Drowsiness occurs before the onset of seizures. Seizures are classically followed by CNS depression which may be accompanied by hypotension and apnoea.

The typical plasma concentration associated with seizures is 4.5 to 5.5ug/ml., of Bupivacaine .For L-bupivacaine it requires 30 times more blood concentration, so less toxic. Uptake in C.N.S. is also entomere selective, results in less CNS uptake hence less toxic.

Selective cardiac toxicity

After accidental iv injection may result in precipitous hypotension, cardiac dysrhythmias and atrioventricular heart block. Cardio toxic plasma concentration of bupivacaine is 8 to 10 ug/ml. The threshold for cardiac toxicity produced by Bupivacaine may be decreased in patients being treated with drugs that inhibit myocardial impulse propagation (beta-adrenergic blockers, digitalis preparations, calcium channel blocker).

L- Bupivacaine show less affinity & strength of blockage in active state for cardiac sodium channel, hence less cardio toxic.

Hepatotoxicity

Continuous or intermittent epidural administration of Bupivacaine has been associated with increased plasma concentration of liver transaminase enzymes that normalized when Bupivacaine infusion was discontinued.

MATERIALS AND METHODS

The present study was conducted in random 60 patients posted for upper limb surgery having ASA grade 1 and 2 physical status.

The patients were randomly allotted into two groups each having 30 patients.

Group R– inj. Levobupivacaine 0.5% 0.8 ml/kg

Group B– inj. Bupivacaine 0.5% 0.8 ml/kg

Inclusion criteria

Normal adult patients of either sex, aged between 18 to 75 years belonging to ASA class I and II admitted for elective upper limb surgeries.

Exclusion criteria- (1, 2)

1 Patients with known hypersensitivity or contraindications to study drugs

2 Infection at site of block

3 Patients on anticoagulant drugs or with altered coagulation profiles

4 Patients with severe systemic illness
5 Patients with psychiatric or neurological disorders
Pre anesthetic assessment:

- All patients were thoroughly examined on previous day of the surgery and again in pre-anaesthetic room before surgery.
- A history of any present or past illness and detailed general as well as systemic examination were done and investigations were checked.
- Baseline vitals were noted and informed written consent was taken from patient and his/her close relative.
- On the day of surgery, intravenous line was secured.

Anaesthesia machine, filled oxygen cylinders, 2 working laryngoscopes, appropriate sized ET tubes , suction apparatus with catheters, airways, and emergency tray/kit containing drugs and instruments.
Pre-medication:
All the patients were premedicated with injondansetron 4mg,iv.
Vitals were noted before and after premedication.
Supraclavicular block was performed in all patients with technique described by Winnie, with the help of nerve stimulator. (4)
Immediately after block placement, patients were evaluated every 1 minute, for assessment of onset of sensory and motor blockade, quality of motor blockade, duration of sensory and motor blockade and hemodynamic changes. Assessments were carried out every 1 minute till the achievement of motor and sensory blocks until 30 minutes. After 30 minutes if the block was considered to be adequate, surgeons were allowed to apply the tourniquet and start surgery. If the block was considered to be inadequate for surgery, the patient was given general anesthesia with endotracheal intubation.
During the surgery tourniquet time, hemodynamic variables like HR, SBP, DBP, MAP, SPO_2, ECG were monitored at 2, 5 and 10 minutes and then every 10 minutes till the completion of the surgery, later every 60 minutes till 24 hours. Patients were monitored for any signs of cardiovascular or central nervous toxicity (changes in HR/BP/rhythm/signs of CNS stimulation) throughout the study. Any hypersensitivity reaction for the drugs, evidence of pneumothorax, and other adverse events were also monitored. Patients were asked to document the time when they feel the pain and the time when full power returned to the shoulder. In the post-operative period, when the patient complained of pain at the operative site, inj.diclofenac sodium 75 mg was given and study was concluded.
Table 6: duration of sensory block, motor block and analgesia in two groups (minutes) (mean± SD)

	L-Bupivacaine	Bupicaine	p-value
Sensory block	630.96±95.22	525.8±100.90	<0.05
Motor block	520.20±85.24	612.66±89.41	<0.05
Analgesia	781.43±96.22	622.16±103.80	<0.05
Total	N=30	N=30	

There was significant difference in duration of sensory block (<0.05), and analgesia (<0.05) in both the groups.
The average duration of sensory block was 630±95.22 minutes in L Bupivacaine group whereas it was 525±.8 minutes in Bupivacaine group which was significant statistically.
The average duration of motor blockade was 520±20, minutes in L-Bupivacaine group whereas it was 612±89.41 minutes in Bupivacaine group which was not significant statistically (p<0.05).
The average duration of analgesia was 781 minutes in L bupivacaine group as compared to 622 minutes in Bupivacaine group which was statistically significant.

Demographic data comparing age, sex, weight, height shows no statistically significant differences between the groups

Discussion:

L-Bupivacaine has been studied in many clinical trials involving most forms of regional anesthesia.(3,5,6)

Here in our study we found that block produced by both the drugs, was good, complete sensory& motor block , recent investigations by Cline E et al, Cacciapuoti A, et al,& Piangatelli C, et al, have similar findings.(6,9)

Levobupivacaine has average sensory block onset time 10.5 minutes as compared to 18.7 minutes with Bupivacaine, i.e earlier onset of sesory block. Finding similar to Cline E et al, Cacciapuoti A, et al,& Piangatelli C, et al.

L-bupivacaine , in our study have average sensory block duration of 630 min. compared to 525 min. of bupivacaine, findings similar to Cline E et al, Cacciapuoti A, et al,& Piangatelli C, et al, (6,7,8,9)

The average duration of total analgesia was 781 minutes in L bupivacaine group as compared to 622 minutes in Bupivacaine group which was statistically significant. Eric et al have 832±285 of analgesia, &cox has1032 mint. Neither which is more as they have added epinephrine (1:200000) to their respective drug.(6)

L-bupivacaine, in our study has average motor block duration of 510minutes as compared to 612 min. of Bupivacaine. Findings similar to Cline E et al, Cacciapuoti A, et al,& Piangatelli C, et .(6,7,8,9)

From our study we can say that L-bupivacaine & Bupivacaine have similar clinical profile, sensory block has early onset & longer duration of action, with l-bupivacaine., while motor block has faster onset & longer duration with bupivacaine. Findings may not have any clinical significance use of either drug. But L-bupivacaine is having safety index of 1.3, i.e it requires 30 times more blood level to trigger adverse cardiac &CNS reactions.

SUMMARY&CONCLUSION:

Levobupivacaine is a long acting local anesthetic with a clinical profile similar to that of bupivacaine. In an individual patient, the clinical anesthetic effect from the drug is similar to that of bupivacaine. The better safety profile of levobupivacaine confers an advantage over its racemic parent, Bupivacaine.

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2]

STUDY OF SENSORY NERVE CONDUCTION OF MEDIAN AND ULNAR NERVES IN THE UPPER LIMBS: EFFECT OF AGE, GENDER AND BMI.

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ABSTRACT:

INTRODUCTION: Nerve conduction studies play an important role in clinical practice and research. They are a standard procedure for evaluation of peripheral neuropathy. Subject data is typically compared with the normative data to interpret study results. Temperature control and standardized technique along with consideration for age, gender, height and instrumentation is imperative for appropriate interpretation of electro diagnostic studies.

OBJECTIVE: In the present study the effects of age, gender and BMI on sensory conduction velocity and sensory amplitude of the compound nerve action potential of median and ulnar nerves of adults were prospectively studied.

METHODS: The present study included 180 normal subjects who were divided in three groups according to their age. An additional 20 subjects with a BMI more than 30 kg/m^2 from the age group 18 – 30 years were taken and were labeled as obese group. Parameters were recorded using NEUROCARE ^{TM} 2000 which is a computerized EMG/NCV/EP Equipment.

RESULTS: Conduction velocity and amplitude of the compound action potential were found to decrease with age. No effect of gender was seen on the conduction velocity, but a difference in amplitude was obtained between males and females. Amplitude was found to be greater in females as compared to males. Increasing BMI also showed no effect on conduction velocity but decreased the amplitude.

KEY WORDS: Sensory Conduction velocity Body Mass Index Age Gender Amplitude

INTRODUCTION

Determination of peripheral motor and sensory nerve conduction velocity has come to play a prominent role in clinical diagnosis. Increased use of nerve conduction studies in clinical practice and research and attention to quality in health care has heightened interest in the reliability of results. For this reason proper reference

values are critical for valid interpretation. The use of conduction studies as a diagnostic procedure in neurology requires a knowledge of the range of values encountered in healthy individuals.

It was at the first Congress of Electromyography in 1961 that Lambert summarized the clinical value and importance of stimulating peripheral nerves and recording the evoked muscle action potentials (1). Most of these studies although appropriate for their time, did not maintain room temperature and some did not account for potential differences in results, depending on the demographic characteristics that could potentially affect the values e.g. age, gender, height etc

In the present study the effects of age, gender and BMI (Body Mass Index) on sensory conduction velocity and amplitude in median and ulnar nerves of adults were prospectively studied. The effect of age and gender in adult nerve conduction studies are of importance to the clinical neurophysiologist in establishing tighter control data. An increase in obesity prevalence has been observed globally. Obesity poses as a risk factor for many diseases eg hypertension, ischaemic heart disease, stroke, carpal tunnel syndrome etc. Thus it is very important to study the effect of increasing BMI and fat percentages on nerve conduction parameters.

Recently there has been increased attention for the development of normative data against which test results can be compared. This study provides normative age and gender matched electro diagnostic data for the median and ulnar nerves which can be used as reference values.

MATERIALS AND METHODS

The present study included 180 normal subjects who were divided in three groups according to their age. The three age groups are Group I (18-30 years), Group II (31-45 years) and Group III (46-60 years). Out of the 60 subjects in each group, 30 were males and 30 females. An additional 20 obese subjects (8 males; 12 females) with a BMI more than 30 kg/m^2 from the age group 18–30 years were taken and compared with 20 people (13 males;7 females) of normal BMI selected randomly from Group I. Study was performed in accordance with ethical standards of the institute.

Subjects were called in the morning after light breakfast. They were made to sit for half an hour in an air-conditioned room with temperature being maintained between 21 - 23 degree Centigrade (2). All the measurements were taken with the subject sitting up comfortably on a wooden stool. The procedure was fully explained to the subject and written informed consent was taken. A detail history with preliminary details was taken for each subject. BMI was calculated by the formula weight/height square expressed as kg/sq.m . All recordings were taken from the dominant hand.

Exclusion criteria included any metabolic disorder, fracture, deformity, radiculopathy, nerve compression, neurological disorder, intake of certain drugs, any addictions etc. The exclusion criterion was done with the help of detailed history and examination.

In the present study sensory nerve conduction velocity across the median and ulnar nerve is studied using NEUROCARE ^{TM} 2000 which is a computerized EMG/NCV/EP Equipment. Sensory nerve conduction velocity is measured by stimulating at a single stimulation site. The stimulating electrodes were placed with anode 2-3 centimeters proximal to cathode. Stimulation was applied over the median and ulnar nerve at a point 14 cm proximal to the proximal interphalangeal joint (PIP) joint of the index and little finger. A supramaximal strength of stimulus was used. The compound nerve action potential was recorded using a pair of ring electrodes. The ground electrode was placed on the dorsum of the hand between the stimulating and recording electrodes.

For Sensory Studies: Sensitivity: 10–20 μv/mm, low frequency filter: 5–10 Hz, high frequency filter: 2–3 KHz, sweep speed: 1–2 ms/mm.

Results were expressed as mean±S.D. Comparisons for effect of age on nerve conduction velocity and amplitude were made between groups by ANOVA test followed by a post test (Tukey Kramer). To study the

effect of gender and BMI on nerve conduction velocity and amplitude Students unpaired't' test is used. P-value, less than 0.05, was considered as significant.

RESULT

Table I gives the anthropometric characteristics namely height, body weight and BMI of these volunteers. Comparisions between the groups was done using one way ANOVA.

Table II shows the comparison of age with conduction velocity and amplitude.

There is no significant difference in conduction velocity and amplitude between Group I and II, and between Group II and III. But there is a significant decrease in these parameters when compared between Group I and Group III. Comparisions were done using one way ANOVA followed by Tukey Kramer post test.

In Table III the effect of gender was studied on conduction velocity and amplitude. The conduction was found to be faster in females as compared to males but the difference was not significant. Females were found to have a statistically significant difference in amplitude as compared to males of the same age group. Analysis was done using students unpaired t test.

Table IV gives the comparison of nerve conduction and amplitude between normal and obese individuals. No difference was found in the conduction velocity between the two groups, but a significant decrease in amplitude was observed in obese group as compared to normal.

Table I: Anthropometric parameters of subjects of different age groups of both the genders

PARAMETERS	GROUP I	GROUP II	GROUP III	P Value
MALES				
Height (cm)	165.4±9.3	162.9±8.95	164.1±10.05	0.59
Weight (kg)	64.43±10.59	66.73±10.09	61.26±7.29	0.08
BMI (Kg/m2)	23.47±3.08	24.66± 2.22	23.12±2.15	0.05
FEMALES				
Height (cm)	160.03±9.46	162.5±10.14	160.57±9.5	0.58
Weight (kg)	59.03±10.19	63.13±10.01	62.13±8.9	0.24
BMI (Kg/m2)	23.02±2.86	23.57±2.38	23.87±2.44	0.43

.

Statistical analysis was done by one-way ANOVA. Data presented are mean±SD

TABLE II: Comparison of Nerve Conduction Velocity and Amplitude in different age groups

		GROUP I	GROUP II	GROUP III	P value
Conduction velocity	**Median**	64.06±1.58	63.87±1.09 NS*	63.38±1.33 * NS#	0.0186*
	Ulnar	63.85±2.54	63.295±1.2 NS*	62.57±1.73 *** NS#	0.001**
Amplitude	**Median**	51.83±1.258	51.17±1.489 NS*	50.47±2.13 *** NS#	0.0001 ***
	Ulnar	52.59±1.429	52.19±1.368 NS*	51.79±1.56 ** NS#	0.013 *

Comparison	P Value	Result
Group I Vs II	> 0.05	Not Significant
Group I Vs III	< 0.05	Significant
Group II Vs III	> 0.05	Not Significant

Data presented are mean±SD. Statistical analysis was done by one-way ANOVA and post-hoc by Tukey-Kramer test.
* P< 0.05; ** P < 0.01; *** P < 0.001; ^{NS}* - not significant.

TABLE III: Comparison of Nerve Conduction Velocity and Amplitude between Males and Females

CONDUCTION VELOCITY				AMPLITUDE			
MEDIAN	**MALE**	**FEMALE**	**P value**	**MEDIAN**	**MALE**	**FEMALE**	**P value**
Group I	64.17±0.89	64.52±1.29	0.23	**Group I**	51.4±1.137	52.25±1.23	0.007 *
Group II	63.78±1.14	63.96±1.06	0.54	**Group II**	50.69±1.17	51.64±1.63	0.01 *
Group III	63.24±1.32	63.5±1.35	0.449	**Group III**	49.83±2.02	51.12±2.08	0.01 *
ULNAR	**MALE**	**FEMALE**	**P value**	**ULNAR**	**MALE**	**FEMALE**	**P value**
Group I	63.54±2.56	64.17±2.53	0.344	**Group I**	52.4±1.48	53.2±1.27	0.027 *
Group II	63.09±1.02	63.49±0.83	0.087	**Group II**	51.8±1.369	52.58±1.27	0.025 *
Group III	62.36±1.73	62.78±1.72	0.349	**Group III**	51.4±1.66	52.2±1.36	0.048 *

Results are expressed as mean±S.D using Students unpaired `t` test. * P< 0.05

Table IV: Comparison of conduction velocity and amplitude between normal & obese individuals

PARAMETERS	NERVES	NORMAL	OBESE	P value
Conduction velocity	**Median**	63.76±1.74	63.3±1.1	0.32
	Ulnar	64.54±2.88	63.54±1.78	0.19
	Median	52.87±1.78	51.23±2.08	0.01*

Amplitude	**Ulnar**	52.93±1.27	51.05±1.89	0.0007*

Results are expressed as mean±S.D using Students unpaired `t` test. * P< 0.05

DISCUSSION

Nerve conduction study is based on the simple principle of applying an electrical stimulus at a point on the nerve and recording the signal at another point on the innervated muscle. The complexity lies in its clinical application and interpretation of the results.

In the present study the conduction velocity ranged from 60 to 68m/sec for the median nerve and from 57 to 70 m/sec for the ulnar nerve respectively.

In our study we found that the nerve conduction velocity for both median and ulnar nerves declined with age (Table II).

The results are consistent with most of the studies in the past. Studies in accordance with present study are as follows. Richard F. Mayer (1963) observed that after the age of 50 years there was a decrease in nerve conduction velocity, which was more apparent in upper than lower extremities and was more prominent distally (3). Dana et al (1992) studied effects of age, sex and anthropometric factors on nerve conduction measures. They found that age was significantly associated with sensory amplitudes and all conduction and latency measurements (4). Henry et al (2004) did a prospective study for sensory nerve conduction 5.4 years apart. They showed that change occurred at a greater rate in median than in ulnar sensory nerve parameters (5). In the study done by Berenice et al (2004) among 92 employees at Santa Casa, they reported a reduction in the velocity of motor and sensory nerve conduction with age (6).

Studies which disagree with the above-mentioned researchers and our observations, have been done by Kauchtschischwili et al in the year 1962 (1) and by Michael Thomas & Malik (2001). They found age to be negatively correlated with nerve conduction.(7)

It is seen from our study that there occurs a decline in nerve conduction velocity with age. The causes for such a decline can be attributed to loss of neurons, axonal degeneration, demyelination, loss of myelinated and unmyelinated fibres and changes in membrane permeability. Also, with age the regeneration capacity of the nerves after injury decreases. A progressive reduction of nerve blood flow occurs with aging thus decreasing the supply of nutrients (oxygen, glucose) to the aged neurons which also may affect the velocity.

The amplitude of sensory nerve action potential suggests the density of nerve fibres. The amplitude is variable not only in different normal individuals but also in the same individual on two sides. In our study we found that there is a decline in amplitude with increasing age (Table II).

The studies which agree with our studies are that of Peter Kenneth Taylor who found that from the fifth decade onwards, sensory and motor nerve conduction velocity and amplitude decline at an increasing rate with increasing sensory duration (8). Also Ralph M Buschbacher in the year 1999 studied mixed nerve conduction in median and ulnar nerves and found that increase in age correlated with a decrease in amplitude (9). Similar studies done by Michael Thomas & Malik (8) and Berenice et al (6) reported that age was strongly correlated inversely with the amplitudes of sensory and motor responses.

From the above studies it can be concluded that the amplitude of the sensory nerve action potential decreases with age and this decrease is significant after the age of 45 - 50 years. The possible mechanisms for

this decline in amplitude with aging could be due to reduction of number of axons, loss of functioning motor units, segmental demyelination and decrease in axonal transport.

In the present study the effect of gender on conduction velocity is also studied. Findings show that females conduct faster than males but this difference is statistically not significant (Table III).

The finding of the present study is consistent with that of previous researchers like Nielsen, who in 1973 studied the median nerve in men and women and found no difference in relation to gender (10). According to the study by Rasoul Soudmand, Charles Ward & Thomas Swift (1982), nerve conduction velocity was not related to sex when height was removed (11).

In opposition to above findings, in the work done by some other authors, it is notable that women conducted faster than men and the difference was statistically significant.

LaFratta & Smith (1964) found conduction to be greater in females then males in the ulnar nerve (12).A study by Hennessey and others (1992) confirmed that women had significantly faster ulnar sensory nerve conduction velocity and shorter ulnar distal motor latency (13). Lawrence, Doborah, Patricia Wilfred, & Walter (1993) analyzed that women had significantly faster conduction velocities than men for all nerves except median motor (14).

On studying the effect of gender on amplitude in sensory part of these nerves, females were found to have a greater amplitude as compared to males of the same age group (Table III).

Lawrence, Doborah, Patricia Wilfred & Walter (1993) analyzed median, ulnar, peroneal and sural nerves. It was observed that three of four sensory amplitudes were larger in women (median, ulnar and sural) (14). Hennessey & others (1992) observed that women, in comparison to men, have significantly larger distal amplitudes for median, ulnar and radial nerves (13). Even the study done by Bolton is in accordance with our results (15). As opposed to this study done by Buschbacher RM failed to show any significant difference in amplitudes in milieu with gender (9).

The reason that women have larger sensory nerve action potential amplitudes is probably a reflection of thinner fingers and less tissue between the nerve and the surface recording electrodes. Since amplitude decreases as the distance between nerve and electrode increases our results were in the expected direction. Further studies correlating finger circumference with amplitude are required to validate our diagnosis.

Conduction velocity and amplitude of normal individuals were compared with obese. Conduction velocity did not change, but a decrease in amplitude was observed as the BMI increased (Table IV).

Ralph Buschbacher in 1998 found no correlation between nerve conduction studies and BMI, whereas the sensory and mixed nerve amplitudes decreased significantly with increasing BMI (16).

Study done by Letz & Gerr (1994) found nerve conduction of the median nerve to decrease with increase in weight, whereas the conduction velocity of ulnar, peroneal and sural nerves tends to improve among subjects who were obese (17).

The findings of our study can be attributed to a thicker subcutaneous layer in obese individuals. As most routine nerve conduction studies employ percutaneous stimulation and recording techniques, a thicker layer

of subcutaneous fat might interfere with the recording and detection of signals hence there is a decrease in the amplitude.

CONCLUSION

In conclusion our results, provides one with normal reference values matched for most of the physiological factors i.e age, gender, temperature, limb dominance. The results become important in neurology for comparisons of patient data. It is also seen from the present study that age is an important cofounder responsible for decrease in conduction velocity and amplitude of the sensory nerve action potential. There was no significant difference in conduction velocity in context with gender. However sensory amplitudes were found to be greater in females than males of the same age group. Further research correlating height, limb lengths and finger circumference with gender is required in this field. The relationship of obesity with these two nerve conduction parameters was studied. It was found that conduction velocity did not alter with increasing BMI, but a decline in amplitude of the sensory nerve action potential was observed in obese individuals as compared to subjects with normal BMI. These findings need to be further confirmed by taking a larger sample size and also by correlating the percentage of body fat with conduction velocity and amplitude.

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3]

"Oral Midazolam for Premedication in Children Undergoing Various Elective Surgical procedures"

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Abstract

Background; This study was done to compare oral midazolam 0.5 mg/kg versus 0.75 mg/kg as a premedication in children with regard to sedation and anxiolysis.

Material and Methods: Study was done in 90 children (ASA I & II), aged 4 to 8 years who were scheduled for various elective surgeries. Patients were randomly divided into three groups (No=30 each). Group A was control and Group B and C received an oral administration of 0.5mg/kg, 0.75mg/kg respectively, of injectable midazolam (Preservative free) mixed with orange syrup, 45 minutes before surgery.

Results: The acceptance of drug was very good. All children in Group A (without premedication) were extremely anxious and crying or thrashing while in Group B and C, 80% and 90% patients respectively were calm and sleepy at the time of separation from parents, on arrival at OR and at the time of venipuncture and induction of anesthesia. Midazolam did not impact the overall recovery time in children.

Conclusion: A dose of 0.75mg/kg of injectable midazolam given orally as premedication for children undergoing various elective surgical procedures offers effective sedation and better emotional control facilitating better separation and co-operation during venipuncture and induction of anesthesia.
Keywords: Oral midazolam, Children, Premedication.

"Oral Midazolam for Premedication in Children Undergoing Various Elective Surgical procedures."

Introduction:

Surgical intervention causes Psycho-trauma to children as well as parents. Most children are fearful, anxious and uncooperative.

A multimodal approach consisting sedative drugs, parental presence, play therapy, familiar environment and effective pain therapy is necessary to reduce pre-operative anxiety.

Premedication is best given by an oral route in children as children exhibit an exaggerated psychological response to a needle, and it is easier to give medication orally than to use nasal or rectal routes [1]. At physiological PH, it becomes highly lipophilic which causes rapid absorption of midazolam from GIT. Midazolam has rapid onset and relatively short duration of action. It has several beneficial effects such as sedation, anxiolysis and amnesia. Midazolam in children decreases preoperative anxiety and facilitate separation from parents with fewer unwanted side effects.[2] Doses of injectable midazolam mixed with orange syrup were used in this study as an oral premedication.

The objectives of this study were to assess the efficacy and safety of oral injectable midazolam (Preservative free) in different doses and to determine the optimal dose as a premedication in children undergoing Surgery.

Material and methods:

The study was done in 90 children (ASA I & II), aged 4 to 8 years within normal range of weight who were scheduled for various elective surgeries. Preoperative assessment was done and written informed consent was obtained from parents.

Children were excluded from the study if they had any mental retardation or physical disabilities, were under treatment with sedatives or anticonvulsants, or if their parents refused to allow them to participate.

Patients were randomly divided into three groups (No=30 each). Group A was control group and Group B and C received an oral administration of 0.5mg/kg, 0.75mg/kg respectively, of injectable midazolam 5mg/ml preparation (Preservative free) mixed with orange syrup, 45 minutes before surgery.

Acceptance of drug by patient and incidence of vomiting was noted. Time of onset of action of drug noted and after 45min, patients were separated from parents and shifted to O.T. Degree of sedation / anxiolysis noted as per sedation and anxiolysis scores when the child was first seen in the operating room (OR).

Patient's heart rate, blood pressure, respiratory rate, oxygen saturation (SaO2), reaction to separation from parents, and sedation scores including ease of venipuncture and induction of anesthesia were noted.

All children received a standardized GA by the same anesthesiologist. Induction was done by Inj Pentothal 6-7mg/kg, Inj Glycopyrolate 0.004 mg/kg and Inj Scoline 1.5-2mg/kg. Oral Intubation was done by appropriate size of endotracheal tube. Maintenance was done with O_2, N_2o and Sevoflurane. Patient Ventilation was assisted to maintain normocapnia (EtCO2 32–38mmHg). Patients'electrocardiogram, noninvasive arterial blood pressure, pulse oximetry, capnography were monitored as part of standard GA procedure. Analgesia was given by IV Inj. Diclofenac. Tracheal extubation was performed when normoventilation was achieved and the patients regained gag or cough reflex.

Recovery time to painful stimulation and Verbal command noted.

Observation and Results:

All groups were comparable with respect to ASA status, gender, age, weight, and duration of anesthesia.

Acceptance of the medication was defined as swallowing without immediate vomiting. The acceptance of drug was very good and similar across the groups. All children liked the taste very well and none of the patients in any of the groups vomited soon after swallowing the premedication.

The degree of sedation and anxiolysis was noted when the child was first seen in the operating room (OR) as given in Table 1. Score 2 or less was considered as satisfactory sedation and anxiolysis.

Table 1 Sedation and Anxiolysis scores

Score	Sedation	Score	Anxiolysis
1	Asleep	1	Calm
2	Drowsy – less active	2	Apprehensive
3	Awake	3	Crying
4	Agitated	4	Thrasing

Table 2 : Satisfactory sedation and Anxiolysis (Percentage of patients)

Time(Min)	Satisfactory sedation			Satisfactory Anxiolysis		
	A	B	C	A	B	C
15	0%	10%	20%	0%	15%	25%
30	0%	50%	40%	0%	55%	50%
45	0%	80%	90%	0%	80%	90%

Satisfactory sedation and anxiolysis was noted in 80% and 90% of patients in Group B and C respectively after 45 min of premedication.
Time taken for score to be 2 or less was considered as onset of action of drug. The onset of action was 20±5 and 18±5 minutes in Group B and C respectively.
Reaction to Separation from Parents was noted from sedation and anxiolysis scores. All children in Group A (without premedication) were extremely anxious and crying or thrashing while in Group B and C, 80% and 90% patients respectively were calm and sleepy at the time of separation from parents, on arrival at OR and at the time of venipuncture and induction of anesthesia.
This difference was statistically significant ($P< 0.05$)

Vital parameters
During the premedication time, none of the patients in Group B and C had an incidence of bradycardia (heart rate <20% baseline), hypotension (mean blood pressure <20% of baseline) or desaturation episodes (O2 saturation <95%) while Group A patients shows tachycardia and rise in B.P.

Table 3 : Recovery Time

Recovery time(Min)	A	B	C
Responding to painful stimuli	5 ± 2	5±2	6 ± 3
Following verbal command	6 ±5	8 ±2	9 ±5

The recovery time was short in both the Groups B and C. Patients were responding to painful stimuli within 5-6 minutes and following verbal commands within 8-10 minutes in Group B and C. Midazolam dose did not impact the overall recovery time in children.

Statistical Analysis
Demographic variables and duration of anesthesia were compared using ANOVAs test, whereas the results were compared within groups using Chi Square analysis. A P-value of < 0.05 was considered statistically significant.

Discussion

The population of children has special characteristics; they are extremely uncooperative, fearful, anxious, and physically resistant. Midazolam is the most commonly used drug for premedication and is used in greater than 90% of surgical cases involving premedication in the United States [3].

The combination of the sedative and anxiolytic characteristics is believed to create a calming effect which makes children less anxious when they are separated from their parents and during induction of anesthesia. Finley et al. [4] showed that a midazolam decreases anxiety which was more pronounced for children with higher baseline levels of anxiety.

Oral midazolam was found to be superior when compared with other commonly used premedications. Oral midazolam was reported to give a more predictable and effective sedation than oral diazepam [5].The problem with injectable midazolam is that it is very bitter. In this study we used orange syrup as a carrier. We found that it is easily available and convenient to use.

Mishra et al. [6] mixed IV midazolam with honey which was well accepted by most of their subjects. However, since this mixture is not transparent and not a liquid, there is a question if its use violates the fasting protocol for children [6].

Feld et al. [7] also reported a superior anxiolysis 30 minutes after a 0.75mg/kg dose of oral midazolam as compared to 0.25mg/kg and 0.5mg/kg doses or placebo.
Clinical sedative effects are seen within 5 to 10 minutes of oral midazolam administration; the peak effect is achieved in 20 to 30 minutes. Similar results were seen even when separation time was set to 45 minutes.

Cox et al. [8] reviewed 30 papers regarding the use of oral midazolam for premedication and concluded that it is effective in reducing both separation and induction anxiety in children, with minimal effect on recovery times. We did not observe any significant delay in recovery time after 0.5 and 0.75mg/kg doses.

Preoperative oral midazolam has proved effective in treating preoperative anxiety. In this study, injectable midazolam given orally as premedication was acceptable, effective, and safe. The onset of action was 20±5 and 18±5 minutes in Group B and C respectively. Satisfactory sedation and anxiolysis was noted in 80% and 90% of patients in Group B and C respectively after 45 min after premedication. All children in Group A (without premedication) were extremely anxious and crying or thrashing while in Group B and C, 80% and 90% patients respectively were calm and sleepy at the time of separation from parents, on arrival at OR and at the time of venipuncture and induction of anesthesia . Midazolam did not impact the overall recovery time in children.

We concluded that oral Midazolam is well suited, acceptable, effective, and safe as premedication in pediatric patients and it did not impact the overall recovery times in children. A dose of 0.75mg/kg of injectable midazolam given orally as premedication for children undergoing various elective surgeries offers effective sedation and better emotional control facilitating better separation and co-operation during venipuncture and induction of anesthesia.

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4]

A CLINICAL DILEMA- ABDOMINAL TUBERCULOSIS

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ABSTRACT:

BACKGROUND: Tuberculosis hasplagued mankind since Neolithic times (8000 BC). The accurate diagnosis of abdominal tuberculosis requires a high index of suspicion. It may involve the gastrointestinaltract, peritoneum, lymph nodes or solid viscera,constitutes up to 12% of extra pulmonary TB and 1-3% of the total.
AIM: To study the clinical profile of abdominal tuberculosis with emphasis on presentation, investigation, diagnosis, treatment and follow-up.
METHODS: A study of 124 patients of abdominal tuberculosis was done between January2010 to June2013 by reviewing their clinical information, therapeutics and outcomes. Diagnosis was based on clinicalfeatures , imaging techniques and/or histo-pathology.
RESULTS: 124 cases of ATB were studied. Median age was 33.1 years, with M: F ratio is 1:1.06. The common symptoms were Abdominal pain,weight loss, fever, and anorexia .Common clinical signs were pyrexia , ascites and abdominal tenderness . Sub-acute and acuteintestinal obstructions were seen in 16 and 4 patients respectively. Laparoscopyand laparotomy had a high percentage of making diagnosis of Abdominal TB. In 100 patients, granulomatous lesion and/or Langhan's giant cells were found confirming diagnosis of tuberculosis, while 3 patients were diagnosed by positive acid-fast culture. In 21 patients with suggestive clinical history and negative diagnostic workup, response to therapeutic trial of anti TB drugs was the basis of diagnosis.87patients responded to medical treatment and 37patients with complications required additional surgical intervention. Total 15 patients died and no case of relapse was noted.
CONCLUSIONS: Abdominal tuberculosis can be difficult to diagnose because of the variable presentation, the low percentage with positive microscopy for acid-fast bacilli and the time delay of up to several weeks for a positive TB culture. The thresholds for laparoscopy and/or laparotomy for the diagnosis were low but diagnosis could be made rapidly and early treatment ca be instituted. Six months short-course chemotherapy is very effective in ATB.

KEYWORDS: Abdominal Tuberculosis, pulmonary tuberculosis, histopathology

MAIN ARTICLE

INTRODUCTION

Tuberculosis is commonest communicable disease and causes some 3 million deaths per year worldwide.[1]TB of the gastrointestinal tract is the sixth most frequent form of extra-pulmonary site[3]with a variable presentation, frequentlymimicking other common and rare diseases[6]. The commonest site of disease is gastrointestinal tract, peritoneum and mesenteric lymph nodes. Because of nonspecific clinical and radiological findings mimicking several diseases, such as Crohn'sdisease, carcinoma, sarcoma[8], amebiasis, gastrointestinal histoplasmosis, and periappendiceal abscess[7], the diagnosis of the abdominal TB requires a high index of suspicion andit usually takes a long time to get accurate diagnosis .

Invasive procedures are required for obtaining tissue for histo-pathological examination or culture which are not easily available in developing countries[9,10].Imaging technics (ultrasound, barium X-Rays, and CT scan) and

Mantoux test have only supportive value. Therefore, diagnosis of abdominaltuberculosis is anongoing challenge to the physicians..

Mostbacilli isolated in patients with abdominal tuberculosis are Mycobacterium tuberculosisand not Mycobacterium bovis[12-14].50% ofAIDS patients with tuberculosis have extra-pulmonary involvement, compared toonly 10-15% of non-HIV tuberculosis patients[15].

Materials and Methods

A historically prospective study of 124 patients of ATB was done between Jan 2010 to June 2013 in L.G. hospital .A detailed history of patients suspected to have abdominal tuberculosis was obtained and / or operative findings were evaluated. In addition to physical examination, basic laboratory studiesandHIV serology were done. Chest and abdominal X-ray, tuberculin skin test and abdominal ultrasound were done. If Chest X-ray was suggestive of pulmonary tuberculosis twosputum examination for acid fast bacilli were done. In patients presented with nonspecific abdominal pain abdominal CT , fine needle aspiration (FNA) biopsy ,laparoscopy, upper and lower GI system endoscopy, and endoscopic biopsy were done accordingly.In patients presented with ascites, ascites fluid biochemical, cytologicaland bacteriological examination was done. Stool examination, colonoscopy, barium meal follow up, endoscopic biopsy for histopathologic examination and abdominal CT were done based on symptoms. Laprotomy was performed in patients presented with intestinal obstruction or perforation.All biopsy specimen were studied for bacteriological and histopathological examination for confirmation of tuberculosis.

For our study, abdominal tuberculosis was defined as TB affecting the peritoneum, abdominal lymph nodes, omentum, liver, spleen, and/or gastrointestinal tract.Diagnosisof abdominal TB was based upon a positive AcidFast Bacilli (AFB) smear or culture,histo-pathologyshowing tubercular granuloma (with or without caseation), radiological features compatible with tuberculosis onbarium x-rays of the abdomen, ultrasound or CT scan ofthe abdomen, and patients with a high index of clinicalsuspicion and negative diagnostic workup but showed agood response to therapeutic trial of anti tuberculous drugs[16].Laparoscopic

features felt to be consistent with TB for the purpose of making a presumptive diagnosis were the presence of tubercles, fibroadhesive peritonitis, or caseating lymphadenopathy. Empiric therapeutic trial was conducted for at least for 3 months with standard four drugs regimen.

RESULTS

Table 1

Presenting symptoms and signs

No	Symptoms	No of Patients (%)	Signs	No. of patients
1	Abdominal pain	92 (74.19%)	Fever	75 (60.48%)
2	Weight loss	91(73.38%)	Ascites	39 (31.45 %)
3	Fever	68 (54.83%)	Abdominal Tenderness	32 (25.80 %)
4	Anorexia	56 (45.16%)	Hepatomegaly	30(24.19%)
5	Abdominal distention	33(26.31%)	Splenomegaly	23(18.54%)
6	Diarrhea	24 (19.35 %)	Subacute intestinal obstruction	16(12.90%)
7	Night sweating	23 (18.54%)	Lymphadenopathy	15(12.09%)
8	Vomiting	12 (9.67%)	Abdominal mass	14(11.29%)
9	Cough	9 (7.25%)	Acute Peritonitis	9(7.25%)
10	others	8 (6.45%)	Acute intestinal obstruction	4 (3.22%)
11	Bleeding Per rectum	1 (0.81%)	Bleeding PR and anal mass	1(0.81%)

The overall median age of the patients was 33.1 years (range 15–63). In our study 30 patients were male and 34 patients were female with M: F ratio is 1:1.06. In our study 24patients had a past history of tuberculosis, while 13 patients had family history of tuberculosis. The Montoux test was positive in all patients. The most common presentation was Abdominal pain (74.19%), weight loss (73 %),low grade fever(55%) and anorexia (45%). 26% and 19% of patients had abdominal distention and diarrhea respectively. The most common clinical signs were pyrexia 75(60.48%), ascites 39(31.45%) and abdominal tenderness 32 (25.80%). Abdominal mass was found in 14 patients, while 9 patients presented with frank peritonitis. 4 patients presented with acute intestinal obstruction and 16 patients presented with subacute intestinal obstruction. Anemia was found in 101 (81.45%) patients and ESR was increased in 120(96.77%) patients. Albumin was reduced in 69(55.64%) of patients. On X-ray chest active tuberculouslesion or lesion consistent

with previous TB were detected in 33(26.31%) and 24(19.35%) percent of the patients, respectively. In 15(12.09%) of patientsSputum for AFB was positive. Abnorrmality in abdominal sonography was found in 53(42.74 %) of patients. Ascites was found in 39(31.45 %) patients and on ascites fluid examination; in all of them it was exudative (protein 4.2 gr. /dl) with ADA increased and in all patients lymphocytes(70%) were predominant on cytology.

Table No 2
Diagnostic Positivity of Various Investigations in Patients with Abdominal Tuberculosisatients

No.	Investigation	Performed in No. of Patients	Positive In No Of patients
1	Barium meal and follow through	25	20(80%)
2	Barium enema	10	1(10%)
3	Ultra sound	124	53(42.74%)
4	CT Scan Abdomen	74	63(85.14%)
5	Histopathology of surgical specimen	44	40(90.90%)
	Histopathology of laproscopic biopsy	27	27(100%)
6	Histopathology of Colonoscopic biopsy	14	10(71.42%)
7	Histopathology of CT guided biopsy	30	22(73.33%)
8	Histopathology of upper GI endoscopic biopsy	12	1(8.33%)
9	AFB culture	34	3(8.82%)

On abdominal CT, ascites, gut wall thickness (frequently ileocecal region), omenal thickening, Lymphadenopathy, abscess, and organomegaly etc. were detected in 63(50.80%) patients.Upper gastrointestinal endoscopy was done in 12 patients amongst which one patient was confirmed on histology. Colonoscopy was done in 14 (11.29%) patients and in 10patients ulceration, nodule and inflammation was found, tuberculosis was confirmed by histological examination.In Bariummeal and follow-through abnormal findings (luminal narrowing with proximal dilatation of loops) were found in 16.12% patients. Diagnosis of Abdominal TB was done in 40(90.90%) out of 44 by laproscopy and in case of laprotomy it was 27 (100%).So these procedure had a high percentage of confirming and/or making diagnosis of Abdominal TB. Laparotomy

was done in patients with abdominal masses 14 (11.29%) (ileocaecal, peritoneal), acute intestinal obstruction 4(3.22%), and acute peritonitis 9(7.25%). Samples (ascitic fluid, omental or intestinal biopsy tissues) were sent for acid-fast bacilli culture. The positive yield for acid-fast culture was only in 3 (2.41%) patients, all were on ascitic fluid. In 21(16.93%) patients with suggestive clinical history and negative diagnostic workup, response to therapeutic trial of anti TB drugs was the basis of diagnosis.

Out of the total 124 patientsin our study, total 15(12.09%) patients expired, in which 8 were due to tuberculosis. Out of these eight patients four had extensive pulmonary tuberculosis. Three patients expired due to AKT induced hepatitis and hepatic encephalopathy. One patient expired due to associated IHD and congestive cardiac failure. Two patients expiredperioperatively due to septicemia and septicemic shock and one patient expired due to renal failure.Treatment was given according to RNTCP guideline. Treatment was completed by 105 patients and 15patients expired before the treatment was completed. Four patients lost follow up before treatment was completed.

Discussion

Patients with abdominal TB may have many symptoms and mimic many diseases, therefore if it is not clinically suspected, it may result in important morbidity and mortality. The methods of dissemination of tuberculosis include the ingestion of infected sputum, haematogenous spread from active pulmonary or miliary TB; the ingestion of contaminated milk or food and contiguous spread from adjacent organs.

Mean age of the patients was 33.1(15-63) years, which is comparable with other studies inBolukbas C. et al[17] it was 31.4 years,BalasubramanianRet al[18]it was 30 years and in Ramesh J et al[19] it was 32.8 years. Abdominal tuberculosis is a disease of predominantly young adults with two third of patients of 20-40 years of age group. In our study male to female ratio is 1:1.06. Slight female predominance found in studies done in India[20]. Possible reasons for female predominance are malnutrition, illiteracy, poor access to health care facility and contiguous spread from tuberculous salpingitis[9,17,20]In our study past H/O tuberculosis was found in 12(19.35%) of patients which was comparable withBolukbas C. et al[17]in which it was found 17%.

Gastroenterological symptoms of abdominal TB depend on the organ or tissue involved. Abdominal pain (74%)is the most common symptom found in our patients. Mid abdominal colicky pain represent intermittent small bowel obstruction and was seen in 90-100% of patients in other studies as well **[15,6731].**This emphasizes the non-specific nature of abdominal pain and common feature that is present in abdominal malignancy and Cohn's disease[9, 20]. Abdominal distention (31%), and diarrhea (19%) are other frequent symptoms with is comparable with other studies[17]. Constitutional symptoms of tuberculosis like fever (55%) and weight loss (74%) and anorexia (45%) are also common. In study done by Sharp et al[13] abdominal pain, night sweats and weight loss are found in more than 50 % of the patients .But in study done by Hamdaniet al[24] most common finding was painful febrile ascites found in 70% of patients. In Our study ascites(31%) was the most common physical finding followed by abdominal tenderness(26%). In study done by Ramesh J. et al[19] ascites and abdominal tenderness was found in 27% of patients each. Thus the symptoms and signs of the abdominal tuberculosis may vary according to the site of involvement and no single sign and symptom was the pathognomonic of ATB[25]. .Active tuberculous lesion or lesion consistent with previous Tuberculosis in the lungs are detected in 26 and 17 percent of the whole group of patients, respectively ; which is comparable with other studies[7,26]. In the absence of pulmonary involvement diagnosis is difficult. So, clinical and radiological signs of pulmonary TB must be searched for in every patient even in the absence of pulmonary symptoms. The ascites in tuberculosis has high protein concentration and serum to ascites albumin gradient <1.1gr/dl distinguish it from transudative causes. Ascitic fluid has predominant lymphocyte count, but AFB are rarely detected in ascitis fluid. The detection of adenosine deaminase (ADA) in ascitic fluid has been used as a useful non-culture method for detecting tuberculous peritonitis, with a high sensitivity and specificity[34].In different studies, laparoscopy was found helpful in the diagnosis up to 87%-92% of peritoneal tuberculosis[35].Our diagnosis rate based on response to therapy was similar to the rates reported before[26]. Empiric therapeutic trial appears to be a useful method for rapid presumptive diagnosis and treatment of tuberculosis.

Conclusion

Abdominal TB is a complex disease andhas diverse symptomatology that is non-specific. Tissuediagnosis is mandatory for appropriate management butit is invasive, expensive and unfortunately not alwaysconclusive either.

Different clinical presentation of patients with abdominal TB involving GI system may determine the necessity of diagnostic or therapeutic surgical interventions. The diagnosis can be difficult because of the varied presentation, the low percentage with positive microscopy for acid-fast bacilli and the time delay of up to several weeks for a positive TB culture. A high incidence of suspicion for ATB, and a lowthreshold for laparoscopy are needed to make thediagnosis. Well-monitored, 6-month anti-TB treatmentgives excellent outcomes with minimal relapseand late morbidity. The thresholds for laparoscopy and/or laparotomy for the diagnosis were therefore very low. The diagnosis could be made rapidly by these methods, and early treatment instituted. Six months short-course chemotherapy is very effective in ATB.

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COMPARISION STUDY OF INTRATHECAL INJ.ROPIVACAINE (0.75%) ISOBARIC 1.5 cc V/s INJ.ROPIVACAINE (0.75%) ISOBARIC 2.5 cc FOR LOWER LIMB SURGERY FOR VERY HIGH RISK GROUP OF PATIENTS.

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ABSTRACT

INTRODUCTION: The spinal anesthesia is associated with heamodynamic instability and its consequences in very high risk ASA grade 3 and 4 patients posted for ORIF in fracture neck femur and intertrochanteric fracture. Isobaric ropivacaine has better heamodynamic stability compare to hyperbaric bupivacaine in spinal anesthesia. Regional anesthesia in form of lumbar and sacral plexus block has its own limitations

OBJECTIVE: optimal dose of isobaric ropivacaine spinal anesthesia for patient safety

METHOD: In our comparative observational study 25 patients of ASA grade 3 and ASA grade 4 taken in each group of age above 55 years. In group A Inj. ropivacaine 1.5 cc of 0.75% isobaric, and in Group-B Inj. ropivacaine 2.5 cc of 0.75% isobaric given L3-L4 interspace Intrathecal with spinal needle no 25 along with epidural catheter insertion. All hemodynamic parameter recorded like pulse, systolic blood pressure, diastolic blood pressure at 5, 10, 15 min interval.

RESULTS: With using unpaired t test and p value indicate, there is no advantage of very low dose of ropivacaine intrathecally for hemodynamic stability in very high risk group of patients. Study indicate there are no advantages of using very low dose of intrathecall ropivacaine in high-risk group A patients Vs group B patients.

CONCLUSION: there is no advantage of very low dose of ropivacaine intrathecally for hemodynamic stability in very high group of patients

KEY WORDS: isobaric ropivacaine, spinal anesthesia, hemodynamic stability

INTRODUCTION:

Regional anesthesia is more better than general anesthesia in many ways, so now days spinal anesthesia is preferred for lower limb surgeries in intrathecall, epidural & combined forms, but hemodynamic instability remains major issues of spinal anesthesia in very high risk group patients- ASA GRADE III& IV.

For intrathecall anesthesia, local anesthetics injection bupivacaine with glucose (hyperbaric) is used commonly in various doses at 0.5% concentration solution according to desired duration and level of spinal segments blocking needed. Now, new LA ropivacaine is available for intrathecall anesthesia in isobaric forms available at 0.75% concentration solution which is comparative intermediate acting and low cardio toxic than bupivacaine making less hemodynamic unstable to high risk geriatric age group. In high risk group hip surgeries, if lumbar & sacral plexus block recommended which required high dose of local anesthetics & technically low dose of procedures with no chance of failures, intrathecall isobaric ropivacaine can block lumbar & sacral nerve roots without much complication, adequate effects in low dose. We want to find optimal dose of intrathecall ropivacaine in very high risk age group patients posted for IT , PFM , DHS , AMP , bipolar etc.

MATERIALS AND METHODS

In our we want to compare two different low doses of intrathecall isobaric inj. ropivacaine in high risk group of patients posted for close reduction internal fixation for intertrochanteric fracture of femur for perioperative hemodynamic stability. In our comparative observational study, we have taken total 50 patients randomly (25 patients in each group) posted for above procedure at orthopedic operation theatre at C.U.Shah medical college, Surendranagar. Inclusion criteria for patient was ASA grade 3 and grade 4 for anesthesia, age > 55 yrs. Exclusion criteria is ASA grade 1 and grade 2 for anesthesia , age <55 yrs , abnormal coagulopathy and other contraindication for spinal anesthesia. All routine Ix with special Ix when needed. In both group combined spinal+epidural anesthesia was given, spinal anesthesia given in L3-L4 interspace with spinal needle no 25. Epidural catheter no 20 was fixed at same level keeping catheter 2-3 cm inside epidural space with all aseptic precautions. All patients were given pre medication with Inj glycopyrolate 0.2 mg i.v. and inj ondansetron 4 mg i.v. and inj midazolam 1 mg i.v. slowly. Pre loading done with crystalloids solutions 6 ml/kg according to need of patient either ringers lactate or normal saline, continuous oxygen 2-3 lit/minute given by face mask in intra operative period. In group A – Inj ropivacaine (isobaric) 0.75% 1.5 cc (11.25 mg) given intrathecally. In group B- Inj ropivacaine (isobaric) 0.75% 2.5 cc (19.50) given intrathecally. Epidural catheter was kept reserved for prolongation of anesthesia or unsatisfied effect of spinal anesthesia and post operative pain management. After giving intrathecal spinal anesthesia and getting adequate sensory and motor block, patient shifted to fracture table for ORIF , continue SPO2, NIBP, ECG monitoring done. Intraoperative fluid was given 4 ml/kg in crytalloids. For study purpose hemodynamic parameter taken at 5 min, 10 min, 15 min for stastics.

OBSERVATION AND RESULTS

Statistical tools: Data were entered and analyzed with the Graph Pad.com. Statistical tests used for comparison is Student's t-test. Results are presented as mean (SD) and number (%) of cases as appropriate. The level of significance was set at $P < 0.05$, and 95% confidence intervals were calculated for the main outcome measures.

Table 1: showing the mean & standard deviation values of pulse, systolic blood pressure & diastolic blood pressure in group A & group B at 5, 10, and 15 minutes.
(Group A- ropivacaine 1.5 cc intrathecally & Group B-2.5 cc intrathecally)

Parameters(mean & SD)	5 minute	10 minute	15 minute
Pulse	A-81.38±20.55 B-82.34±20.3	A-82.76±20.32 B-82.23±19.39	A-81.65±28.02 B-77.07±18.39
T value	0.2803	0.75	0.096
P value	0.7816	0.45	0.92
Systolic BP	A-132.72±15.93 B-141.56±19.4	A-165.08±19.34 B-131.16±11.34	A112.64±28.28 B 125.4±12.15
T value	1.16	0.75	0.9064
P value	0.25	0.45	0.369
Diastolic BP	A-86.24±14.58 B-86.44±11.80	A-79.40±13.48 B-81.52±9.17	A74.32±14.81 B79.04±9.33
T value	0.05	0.65	1.36
P value	0.95	0.51	0.17

DISCUSSION

Reactions to ropivacaine are characteristic of those associated with other amide-type local Anesthetics. A major cause of adverse reactions to this group of drugs may be associated with excessive plasma levels, which may be due to over dosage, rapid absorption, unintentional intravascular injection or slow metabolic degradation. They may be difficult to distinguish from the physiological effects of the nerve block or events caused by needle puncture. Acidosis, hyperkalaemia or hypoxia in patients may increase the likelihood and severity of Toxic reactions. Systemic overdose or intravascular injection may affect the CNS and/or the cardiovascular system. Subarachnoid injection may result in depression of the CNS, respiratory arrest and Cardiovascular arrest. According to med safe data there are 10% chances of hypotension & nausea, Incidence > 1% - bradycardia, hypertension, tachycardia and vomiting. Incidence < 1%

Serious but less common reactions severe hypotension, arrhythmias and cardiac arrest.

In our study there was not found any mortality in intra operative period in very high risk group patient. In group A, only 2 patients have found unsatisfactory effect of anesthesia, they were managed accordingly & were excluded from study. In our study there are not such events. So according to table 1mean value& SD of pulse in group A at 5 minutes, 10 minutes,15 minutes is 81.38±20.55, 82.76±20.32, & 81.65±28.02 respectively. mean value& SD of pulse in group B at 5 minutes, 10

minutes,15 minutes is 82.34±20.73, 82.23±19.39,77.07±18.39 respectively. Value of p test is >0.05 not significant. Values of systolic blood pressure & diastolic blood pressure in group A & group B at 5, 10, and 15 minutes from table 1 are showing that the difference between them are not significant. There are not any indicating results in this study that low dose ropivacaine 1.5 cc intrathecall is beneficial than 2.5 cc intrathecall in very high risk group patients- ASA grade III& IV patients.

CONCLUSION AND SUMMARY

Present study shows that the difference between hemodynamic changes after 1.5cc & 2.5cc ropivacaine intrathecall administration is statistically insignificant. There is no advantage of very low dose 1.5cc of ropivacaine over 2.5 cc ropivacaine intrathecall for hemodynamic stability in very high risk group of patients.

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6]

COMPARATIVE STUDY OF ORAL MIDAZOLAM AND ORAL KETAMINE AS PREMEDICATION IN CHILDREN.

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Abstract:

Aims:

To compare the effect of oral Midazolam and oral Ketamine on sedation and anxiety as premedication in children.

Settings and Design:

This is a randomized, controlled, prospective study conducted in 60 children undergoing surgery of more than 30 minutes duration.

Methods and Material:

60 children were divided in two groups. Group M received oral Midazolam 0.5 mg/kg and Group K received oral Ketamine 5 mg/kg as pre medication preoperatively 30 minutes before induction of anaesthesia. Standard general anaesthesia technique was used. Time of onset of sedation, anxiety level at the time of separation from parents and at the time of application of facemask was noted. Any side effect after ingestion of the drug until 6 hours in the post-operative period was looked for. Time of recovery from anaesthesia was noted.

Results:

It was observed that both the drugs were well accepted by the children. Sedation and anxiolysis was better in Ketamine group both during separation from parents and during facemask application. Recovery time in both groups was less than 20 minutes. Recovery is smooth in Ketamine group whereas recovery is associated with irritability and crying in Midazolam group. There were minimal side effects in both the groups.

This study concludes that oral premedication with 5 mg/kg Ketamine is better than 0.5 mg/kg Midazolam.

Conclusions:

Preoperative Ketamine 5mg.kg $^{-1}$ is a better premedicant than Midazolam 0.5 mg.kg $^{-1}$ in pediatric patients. Optimum time interval for excellent anxiolysis and sedation from administration of oral premedication to parental separation is 30 minutes in both groups.

Key-words:

Midazolam,
Ketamine,
Oral Premedication,
Children

Introduction:
Anaesthesia and surgery is stressful and traumatic experience for children. Children are especially vulnerable to long term psychological impairment due to many reasons. The aim of giving premedication to children is to relieve anxiety, reduce trauma associated with separation from their parents and facilitate induction of anaesthesia without prolonging recovery period.

Key features of good premedication are

- Rapid onset
- Short duration of action
- Smooth induction of anaesthesia
- Lack of significant side effects
- Rapid post-op recovery.

Oral Midazolam and Ketamine met these criterias with rapid onset, minimal side effects and rapid post-operative recovery. Feld and co-workers[1] suggested that oral Midazolam 0.5 mg.kg $^{-1}$ 30 mins prior to induction was as effective as Midazolam 0.2 mg.kg $^{-1}$ i.m. for preanesthetic medication. They also suggested that administration of small amounts of fluid to children prior to induction of anaesthesia does not pose a significant risk. Levine and co-workers[2] concluded that children may be separated from their parents as early as ten minutes after receiving oral Midazolam 0.5 mg.kg $^{-1}$. Gutstein and co-workers[3] had found that Ketamine 5 mg.kg $^{-1}$ provides predictable, satisfactory premedication without significant side effects. We therefore designed this study to compare Midazolam and Ketamine as oral premedicants in paediatric anaesthesia.

The present study aims at comparing the efficacy of Ketamine and Midazolam as oral premedication in children with their advantages and disadvantages.

Subjects and Methods:
Sixty children of age group between 1-10 years with ASA grade 1 or 2 undergoing surgery of more than 30 minutes duration were included in the study.
The exclusion criteria included children with neurological dysfunction, increased intracranial pressure, anomalies of cardiovascular system and long term therapy with hepatic enzyme inducing drugs.

The children were randomised in two groups of thirty each. In Group M commercial formulation of oral Midazolam syrup 2 mg/ml in a dose of 0.5 mg/kg and in Group K parenteral formulation of Ketamine 50 mg/ml in a dose of 5 mg/kg mixed with equal volume of sugar syrup were given to patients to swallow 30 minutes prior to induction. Injection Glycopyrolate 0.004 mg/kg intravenous given. Then it was followed by

standard general anaesthesia technique in which induction was done by inj. Thiopentone sodium and inj. Succinylcholine, endotracheal intubation, maintenance by oxygen, nitrous oxide, sevoflurane and inj. atracurium and reversal was done by inj. Neostigmine. Children were observed for the changes in mood, behaviour and appearance, onset of sleepiness, closure of eyes and side effects like nausea, vomiting, increased salivation, hallucination, nystagmus, and hiccup. Various observations were made in a blind manner by one person to avoid observer variation as follows

a) Time of onset of sedation was noted (when the sedation score was 3 or less)
b) Level of sedation at 30 minutes after premedication.
c) Level of anxiety at the time of separation from their parents.
d) Level of anxiety at the time of face masks application.
e) Post-operative recovery time
f) Side effects

Level of sedation was noted on a five point scale as per table no.1

Table 1:Level of sedation on five point scale

Score	Sedation Level
1	Asleep, not readily arousable
2	Asleep but arousable
3	Calm and drowsy
4	Awake
5	Agitated

Level of anxiety was noted on a four point scale as per table no.2 (Emotional state scale).

Table 2:Level of anxiety on four point scale

Score	Anxiety level
1	Calm and sleepy
2	Apprehensive but withdrawn from surroundings
3	Crying
4	Agitated and difficult to control

Results:

Sixty children were randomised in two groups, Group K and Group M. Thirty patients in each group were observed.

Table 1.Demographic data

Age group	Group K	Group M
1-4 years	5	11
5-7 years	9	11
8-10 years	16	8

Sex	Group K	Group M
Male	22	22
Female	8	8

Age and sex do not show any significant relationship with our stud.(P>0.05)

Table 2. Details of sedation scores

	Score	Number of patients	
		Time 30 min	
		Group K	Group M
Sedation	1	5	1
	2	13	1
	3	6	9
	4	5	14
	5	1	5

- Basal sedation score was comparable between both the groups after 30 min with median of 2 in group K and 4 in group M and mean of 2.46 in group K and 4.2 in group M. Table 2 shows that 80% children in group K (score 1=16.66%, score 2=43.33%, score 3=20%) and only 36.66% children in group M (score 1=3.33%, score 2=3.33, score 3=30) attained sedation score 3 or less within 30 minutes and rest remained awake. The difference was clinically significant.(P<0.05)

Table 3.Details of anxiety scores

	Score	Number of patients at			
		Separation from parents		Application of facemask	
		Group K	Group M	Group K	Group M
Anxiety	1	11	4	9	3
	2	10	6	12	8
	3	7	14	8	12
	4	2	6	1	7

- Basal anxiolytic score was compared at two times, one at time of separation from parents and other at the time of application of facemask. Separation was successful in 70% of children in group K (score 1 =33.66%, score 2=33.33%) and 33.33 % in group M (score 1=13.33%, score 2= 20%). The values were statistically significant in both the groups. Application of face mask was excellent in 70 % in group K (score 1= 30%, score 2=40%)

and 36.33 % in group M (score 1=10%, score 2=26.33%).It is statistically significant.($P<0.05$)

- In Midazolam group we observed side effects like nausea, vomiting in three patients, irritability in one patient, breath holding in one patient and low saturation (92%) in one patient. In Ketamine group only one patients experienced nausea, vomiting. We also compared post op recovery time. Average post-op recovery time in Ketamine group was 10 minutes and in Midazolam group was 13 minutes. Also post-op recovery was smooth in group K as compared to group M. **Discussion:**

The principal aim of sedative premedication used in children are to reduce anxiety, facilitate separation from parents and accomplish smooth induction of anaesthesia. The ideal premedication should be easily administered and acceptable, act rapidly, should not have prolong emergence from anaesthesia and have few side effects.

This can be overcome by orally acceptable premedication in addition to psychological preparation of children.

Many sedative analgesic agents and routes of delivery for facilitation of painful procedures have been studied, with varying degrees of patient acceptance, efficacy and safety [4].The inhaled route appears effective primarily in children over eight years of age and requires specialized equipment and significant safety precautions [5]. The intravenous and intramuscular routes are traumatic. The intranasal route is similarly marked by variable absorption, may be irritating to nasal mucosa and drugs administered may traverse directly into the central nervous system through the cribriform plate by traveling along the olfactory nerves[6]The oral route provokes the least anxiety in young children.

Our study evaluated the efficacy of oral Ketamine and oral Midazolam as premedicant in pediatric patients.

Baseline sedation and anxiolysis of children in both groups were comparable with median score of 2.The scores peaked at the time of parental separation. At 30 minutes the sedation and anxiolysis scores were better in Ketamine group compared to Midazolam group. In Ketamine Group 24 (80%) children achieved good sedation (sedation 3 or more), 21 (70%) were easily separated from parents (anxiolysis score 3 or 4) and 21(70%) have good mask acceptance score (anxiolysis score 3 or 4) while in Midazolam group it was 11 (36.66%) and 10 (33.33%) and 11(36.66%) respectively.

Gustein and co worker[3] observed that after oral Ketamine administration sedation occurred in 10-15 minutes which is comparable to other oral premedication regimen.

Gutstein and co-workers[3] and McMillan[8] also observed the benign effects of oral Ketamine and oral Midazolam on cardio respiratory system respectively. Lerman and co-workers[9] compared the clinical characteristics of oral Ketamine and oral Midazolam and found that no important side effects were attributable to either premedication. Gringrich[10]aborted his study after undesirable side effects, including increased secretions, laryngospasm, hallucination and dysphoria from oral Ketamine 6 $mg.kg^{-1}$. Tobias[7]who used oral Ketamine 10 $mg.kg^{-1}$ in 34 children found emergence phenomena in 9% of children, but none required any pharmacological intervention.

It can be concluded that oral premedication with Ketamine in the dose of 5 mg/kg provides better sedation and anxiolysis in children than oral premedication with Midazolam in the dose of 0.5 mg/kg and also Ketamine has minimal side effect and smooth post-op recovery than Midazolam.

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"EFFECT OF ADDING MEGNISIUM SULPHATEAS AN ADJUVANT TO BUPIVACAINE IN SPINAL ANESTHESIA FOR LOWER ABDOMINAL SURGERY.''

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Abstract:

Back ground:: Regional anesthesia is a safe, effective and cheap anesthesia with an added advantage of long duration of post operative analgesia. With epidural block, catheter have been used to produce long post operative analgesia while with spinal anesthesia many adjuvant are used with local anesthetic agent to increase the total duration of effective analgesia.
The present study was conducted in selected 60 patients aged 20-60yrs, ASA GRADE I and II scheduled for lower abdominal surgeries after taking written informed consent.
Method: The patients were randomly allocated in 2 groups, each having 30 patients. Group A: 0.5% heavy bupivacaine 3ml (15 mg) + Normal saline 0.2 ml Group B**:** 0.5% heavy bupivacaine 3ml(15 mg)+50%mgso4 0.2 ml(100mg) Total drug volume with saline in both groups was 3.2ml.and effects were assessed :
Observations: Difference in the duration of effective analgesia between the two groups was statistically highly significant (P value < 0.001). The duration of effective analgesia was significantly lower in Group A (Bupivacaine) compared to group B (Bupivacaine-Magnesium sulphate).
Conclusion It was concluded that magnesium sulphate used as an adjuvant to bupivacaine to produce Central neuroaxial block is useful in prolonging the duration of spinal analgesia and post operative analgesia without any significant side effects.

INTRODUCTION

Pain is "An unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage"

Regional anesthesia is a safe, effective and cheap anesthesia with an added advantage of long duration of post operative analgesia. With epidural block, catheter have been used to produce long post operative analgesia while with spinal anesthesia many

adjuvant are used with local anesthetic agent to increase the total duration of effective analgesia.

Magnesium sulphate blocks NMDA channels in a voltage dependent fashion & such NMDA antagonism can prevent the induction of central sensitisation from peripheral nociceptive stimulation. Ketamine is one NMDA receptor blocker which have been studied for this purpose but magnesium sulphate is new drug. Intrathecal magnesium used as a sole anesthetic adjuvant in single dose is shown to strengthen analgesic effect of spinal anesthesia.

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

AIMS AND OBJECTIVES OF THE STUDY

This study was conducted to evaluate the effect of Mgso4 when added to Bupivacaine for instituting central neuroaxial block. In one group A Bupivacaine plus normal saline and in group B Mgso4 was taken as sole adjuvant with Bupivacaine to produce Central neuraxial block. Both these group were compared.

- To compare the onset of sensory and motor block.
- To compare the duration of sensory and motor block.
- To assess the duration of post-op analgesia obtained in both the groups.
- To compare per-op and post-op hemodynamic changes and side effect.

MATERIAL AND METHODS

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

The patients were randomly allocated in 2 groups, each having 30 patients.
Group A: 0.5% heavy bupivacaine 3ml (15 mg) + Normal saline 0.2 ml
Group B: 0.5% heavy bupivacaine 3ml(15 mg)+50%mgso4 0.2 ml(100mg)

Total drug volume with saline in both groups was 3.2ml.

STUDY PROTOCOL

Pre anesthetic assessment:

- Detailed preoperative history and physical examination done on the previous day of surgery.
- Procedure explained to the patient and patient was informed to communicate about the perception of any discomfort or pain during surgery.
- Explained about VAS score.
- Written informed consent was taken from the patients and his/her relatives.

Equipments:

Equipments used in the study consist of:

- An autoclaved tray consisting of instrument used for painting and drapping.
- Disposable 23G lumber puncture needle.
- Disposable 5 cc syringe, tuberculin syring.

Drugs :

- Inj bupivacaine 0.5% heavy 1 ampoule
- Inj Magnesium sulphate 50% preservative free 1 ampoule

In the operation theatre:

- IV line taken and each patient were preloaded with 15ml/ kg of Ringer's lactate solution before procedure.
- Pulse oximeter, non-invasive blood pressure monitoring and ECG were attached and base line reading taken.

Technique:

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

Evaluation:

- The onset and duration of sensory blockade was assessed by using pinprick test every 1 minute till 15 minutes. Then at 20, 30, 45 and 60 minutes and then every 30 minutes till completion of surgery.
- Time required for sensory block to reach level T_{10} was considered as sensory onset.
- Motor blockade was assessed by modified bromage score.
- Time for onset of grade 3 motor blockade was noted.
- Time for sensory regression to S_2 was noted.

- Time for motor regression to bromage 0 was noted.
- After establishment of adequate level of block, surgery was started and time of beginning of surgery was noted.
- Intravenous fluid was administered in dose depending on the weight of patient and adjusted according to surgery.
- The duration of effective analgesia was defined as time from intrathecal injection to complaint of unbearable pain.
- Patients were watched for any intraoperative complications like bradycardia, hypotension, sedation, nausea, vomiting, dryness of mouth, pruritus and respiratory depression.
- Hypotension was defined as MAP> 20% decrease from baseline value.
- Tachycardia was defined as heart rate >100/mins and bradycardia was defined as heart rate < 60/mins.
- After surgery, patients were monitored every hourly for 12 hours.
- Postoperatively pain measurement was done using VAS scale.
- Sedation score measurement

OBSERVATION AND RESULT

Both the groups were comparable in respect to age, height, weight and sex ratio.

The mean duration of surgery was 85±18.8 minutes in group A given Bupivacaine alone, 93±19 minutes in group B given Bupivacaine and Magnesium sulphate which were comparable.

The mean time to achieve T_{10} sensory level and modified bromage scale III was prolonged in group B (5.1±0.8, 7±1) as compared to group A (4.3±0.8, 5.2±0.8) which was statistically highly significant (P value < 0.001).

The changes in Heart Rate and mean arterial pressure in both the groups were comparable and statistically not significant.

TABLE-1: DURATION OF SENSORY AND MOTOR BLOCKAGE

TIME (minutes)	**Group A (Mean± SD)**	**Group B (Mean± SD)**	**P value**
Sensory regression to S_2 from highest sensory level	169.7±7.90	204.3±6.34	A VS B-<0.001

Motor regression to bromage scale 0	147.75±8.34	175.25±7.69	A VS B-<0.001

Table 1 showing statistically significant prolongation of duration of sensory and motor blockade in group B (P value < 0.001) as compared to group A.

TABLE-2: DURATION OF POST OPERATIVE ANALGESIA

	Group A	**Group B**
No. of patients	30	30
Duration of effective analgesia (mins)	170-220	210-260
Mean ± SD (mins)	188±6.54	238±6.77
P value : A VS B- <0.001		

Table 2 showing the difference in the duration of effective analgesia between the two groups was statistically highly significant (P value < 0.001). The duration of effective analgesia was significantly lower in Group A (Bupivacaine) compared to group B (Bupivacaine-Magnesium sulphate).

The incidence of hypotension was 20% in group A (Bupivacaine) and 15% in group B (Bupivacaine +Mgso4). The incidence of bradycardia was 15 % in both the groups. The incidence of sedation was 2% in group B and no sedation in group A. No incidence of pruritus in both the groups. There was no incidence of nausea, vomiting, dryness of mouth and respiratory depression in any of the groups.

Discussion

Central neuroaxial block is one of the preferred anesthetic technique for lower abdominal surgeries. General anesthesia is associated with many biochemical changes in the body. It also produces more discomfort and may be best avoided in circumstances like Diabetes mellitus, Respiratory diseases. Spinal anesthesia is easier to perform, it has rapid and predictable onset, produce more intense and complete block and has high success rate.

In the context of "augmentation strategies" for spinal analgesia, the discovery of NMDA receptors in spinal cord and subsequent development of technique of intrathecal NMDA receptor blocker is undoubtedly one of the most significant advances in pain management in last three decades. Magnesium sulphate is one the substance which is found to useful for NMDA receptor antagonism. Meltzer and Haubold et al. (1906) were the first to perform spinal anesthesia in humans using Magnesium sulphate. They showed that 1000–2000 mg of intrathecal Magnesium sulphate produced spinal anesthesia that included profound motor and sensory block and observed significant analgesia without any permanent untoward effects. It does not appear that Magnesium sulphate has any primary analgesic effect in its own right, but it does offer secondary analgesic effects that may enhance the action of other analgesic agents.(8)

A recent human study found no harmful effects of Intrathecal magnesium sulphate on spinal opioid analgesia in labour. Thus, intrathecal magnesium sulphate seems to have a good safety profile. Therefore, we have chosen intrathecal route for Magnesium sulphate as an adjuvant in our study.(10

We have selected dose 100mg magnesium sulphate for lower abdominal surgery.

We selected 60 adult patients of ASA grade I and II undergoing elective lower abdominal surgeries and divided into 2 groups of 30 patients in each.

Group A (n=30): 0.5% heavy bupivacaine 3ml (15mg) +Normal saline 0.2 ml

Group B (n=30): 0.5% heavy bupivacaine 3ml (15mg) +50%mgso4 0.2 ml (100mg) +Normal saline 0.5 ml.

Total volume of drug with saline in both the groups was 3.2ml.

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

Our study demonstrates that addition of 100mg Magnesium sulphate had no significant effect on mean pulse rate and mean arterial blood pressure.

In our study, addition Magnesium sulphate to intrathecacal Bupivacaine did affect the onset of sensory and motor block significantly ($p<0.001$); the mean onset time (measured from administration of drug to achieving T10 level by pin prick method) was (4.3±0.8,5.2±0.7min) in group A,(5.1±0.8,7±1 min) in Group B.(6)

It indicates that Magnesium sulphate produced longer duration of sensory and motor block when added as an adjuvant to Bupivacaine than Bupivacaine alone ($p<0.05$).

Duration of effective analgesia means time from the administration of spinal block and the first request for supplemental analgesic.

In our study, the duration of effective analgesia was 188±6.54 min. in group A, 238±6.77 min in group B; which was statistically significant ($p<0.001$). This shows that addition of Magnesium sulphate to intrathecal Bupivacaine significantly prolonged the duration of effective analgesia.

Summary and conclusion

So we concluded that magnesium sulphate used as an adjuvant to bupivacaine to produce Central neuroaxial block is useful in prolonging the duration of spinal analgesia and post operative analgesia without any significant side effects.

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8]

OPHTHALMOSCOPIC RETINOSCOPY FOR MEASUREMENT OF OCULAR REFRACTIVE ERROR

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ABSTRACT:

AIM:The aims of this study were

1. To assess the agreement between ophthalmoscopic retinoscopy and neutralization retinoscopy for measurement of refractive error.

2. To develop calibration scale for various commercially available retinoscope (Heine, keeler, Welchallyn) for ophthalmoscopic retinoscopy.

METHOD:

In this prospective cross-sectional study the ophthalmoscopic retinoscopy was done on 300 eyes of 150 patients after cycloplegia.

The ophthalmoscopic retinoscopy was followed by standard retinoscopy on all the patients.

For cycloplegiacyclopentolate,tropicamide combination was used.

An accurately calibrated HEINE BETA 200 streak retinoscope was used for all the measurement.

RESULT:

Refractive errors obtained by ophthalmoscopic retinoscopy and neutralization retinoscopy had a good level of agreement for mild to moderate hyperopia(ILA:1.9623)followed by mild to moderate hyperopic astigmatism(ILA:1.9897),mild to moderate myopia(ILA:2.347),mild to moderate myopic astigmatism(ILA:2.383),high hyperopic astigmatism(ILA:2.817), high hyperopia(ILA:3.431)& high myopia(ILA: 4.259).

The analysis of this study revealed there is no statistically significant difference in refractive error obtained by ophthalmoscopic retinoscopy and neutralization retinoscopy for different type of refractive error ($P>0.005$) (except for high myopic astigmatism $P<0.005$).

Conclusion:

Ophthalmoscopic retinoscopy has good level of agreement with neutralization retinoscopy for measurement of mild to moderate amount of hyperopia, myopia and hyperopic astigmatism.

Techniques of ophthalmoscopic retinoscopy may be useful in estimating the amount of refractive error in children who object to loose lenses held close to them.

Keywords:

Ophthalmoscopicretinoscopy**,** neutralization retinoscopy, Agreement

INTRODUCTION:

Ophthalmoscopic retinoscopy is an objective method to estimate the amount of ametropia without the use of lense.

The technique was invented by Jack.C.Copeland the father of streak retinoscope.[1]

Techniques of ophthalmoscopicretinoscopy include sliding the sleeve of retinoscope or moving close or away from the patient until we get fine focused image of the retinoscopic filament on the retina.

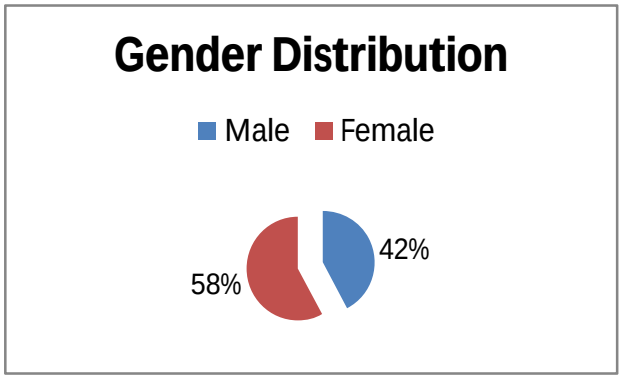
The procedure is done without the use of lenses up to most extent.

Amount of refractive error can be finding out by a scale dependent on the brand of the retinoscope and the distance from the corneal plane where we get fine focused image of retinoscopic filament on the retina.

METHODS AND SUBJECTS:

SUBJECTS:

One hundred and fifty subject were examined among them one hundred and sixty eyes (38 males, 52 females) were selected. The eyes were divided in to eight groups according to type and magnitude of refractive error.



Hyperopic refractive error[6]

- Low : ±0.00D to +3.00D
- Medium : +3.12D to +5.00D
- High : > +5.00D

Myopic refractive error[7]

- Mild : -0.50D to -3.00D
- Moderate: - 3.25D to -6.00D
- High : > -6.00D

Astigmatism [6]

- Low: ±0.00D to ±2.00D
- High: ±2.00D to ±6.00D
- Very High: >±6.00D

INCLUSION CRITERIA:

- All the patients between the age group of 4 to 30 years.

EXCLUSION CRITERIA:

- Mixed astigmatism
- Media opacity

INSTRUMENTATION

A HEINE BETA 200 Streak retinoscope was used for all measurements.

A scale was created adjacent to the sleeve of the retinoscope by calibrating it with schematic eye and the loose lenses.

CALIBRATING THE RETINOSCOPE SLEEVE

Perform calibration in a semi darkened examining room with a 20-foot distance from the Vision Drum to the distant wall. Turn on the retinoscope.

CALIBRATION OF THE CONVERGING BEAM

Bring the sleeve all the way up and place it against a reflecting surface such as the wall. Move away from the wall and observe from the side (not through the peephole) until the streak is in sharp focus on the wall. Now measure the distance between sharp image of retinoscopic filament and retinoscope. The measured distance gives the focal point of retinoscope when the sleeve is all the way up.

The focal points of various commercially available retinoscopes when the sleeve is all the way up are given as below.

HEINE BETA 200: 25CM OR +4.00Dsph.

KEELER PROFESSIONAL: 13CM OR +7.75Dsph.

WELCH ALLYN: 33CM OR +3.OODsph.

CALIBRATION OF THE PARALLEL BEAM:

Sit in the patient's examination chair and aim the retinoscope towards the distant wall while moving the sleeve up and down. Watch where the finest focused image of the filament is observed. Note the relative position of the bottom of the sleeve with regard to the range of sleeve movement. In that position, the retinoscope beam is as parallel as possible and it has no vergence and thus is focused at infinity. The Heine retinoscope has a mechanical stop (Para Stop) at the parallel beam position that can be engaged to prevent the vergence control from being adjusted to a convergent beam. This position can be used as the Plano calibration.

CALIBRATION OF THE DIVERGING BEAM

Sit in the patient's examination chair and Aim the retinoscope towards the distant wall. Move the sleeve all the way down and select the trial lens that allows for the sharpest focus. The divergent beam of the retinoscope will be brought to convergence at infinity when you neutralize it with some lens between + 1.50 to + 2.25 D. Different models of retinoscope vary as to where in space light can be focused behind them.

The focal points of various commercially available retinoscopes when the sleeve is all the way down are given as below:-

- HEINE BETA 200: 44CM OR -2.25Dsph.
- KEELER PROFESSIONAL: 50CM OR -2.00Dsph.
- WELCH ALLYN: 50CM OR -2.OODsph.

From the calibration focusing range of different retinoscopes for ophthalmoscopicretinoscopy are determined.

- HEINE BETA 200 Retinoscope has an ophthalmoscopic retinoscopy focusing range of+4.00D Hyperopia to -2.25D Myopia.
- KEELER PROFESSIONAL Retinoscope has an ophthalmoscopicretinoscpy focusing range of +7.75D Hyperopia to -2.00D Myopia.
- WELCH ALLYN Retinoscope has an ophthalmoscopicretinoscpy focusing range of +3.00D Hyperopia to -2.00D Myopia.

After calibration of the sleeve of retinoscope and determined that it has an ophthalmoscopicretinoscopy focusing range of 4.00 D (or 7.75D or 3.00, depending on the model) of hyperopia to 2.25 D (or 2.00 D or 1.50 D, depending on the model) of myopia the second scale was developed.

PROCEDURE:

Ophthalmoscopicretinoscopy followed by auto refraction and standard retinoscopy was done in all the patients receiving three drops of 0.5%Cyclopentolate, 1%Tropicamide, and 0.5% Cyclopentolate respectively in every five minutes of interval.

The retinoscopy was performed after a period of at least 30 minutes from the administration of the last eye drop.

TECHNIQUES OF OPHTHALMOSCOPIC RETINOSCOPY

When performing ophthalmoscopicretinoscopy, the observer begins with the retinoscope 5cm away from the patient's eye with the sleeve at the Plano position on the adjacent scale. If the patient is Emmetropic you will find the fine focused image of retinoscopic filament at this position. Now rotate the streak 360 degrees by rotating the sleeve of retinoscope. If the streak image is in focus in all meridians, the patient has no astigmatism and the patient is Emmetropic and the ophthalmoscopicretinoscopy reaches the end point at this stage.

RESULT:

[**TABLE 1**] *ILA: Interval between the limits of agreement

OPHTHALMOSCOPICRETINOSCOPY VS. NEUTRALIZATION RETINOSCOPY	MILD TO MOD HYPEROPIA	MILD TO MOD MYOPIA	MILD TO MOD HYPEROPIC ASTIGMATISM	MILD TO MOD MYOPICASTIGMATISM
BIAS	-0.175	-0.0125	-0.017	0.1565
P -VALUE	0.13451	0.92658	0.8825	0.263749
ILA*	1.9623	2.347	1.9897	2.383

[**TABLE 2**] *ILA: Interval between the limits of agreement

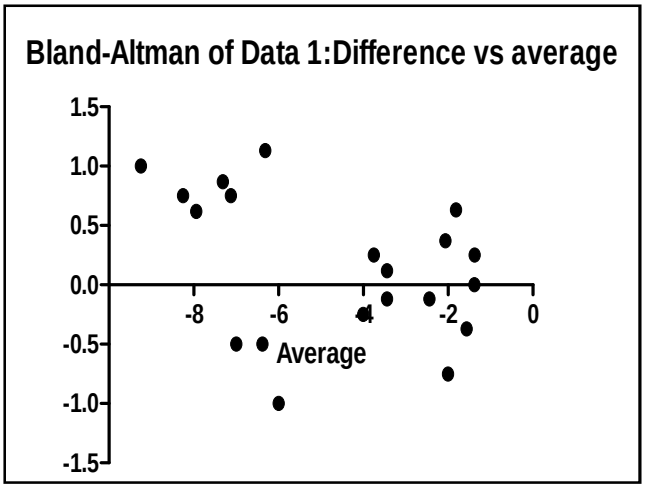
Ophthalmoscopic retinoscopy vs. Neutralization retinoscopy	HIGH HYPEROPIA	HIGH MYOPIA	HIGH HYPEROPIC ASTIGMATISM	HIGH MYOPICASTIGMATISM
BIAS	-0.2375	-0.125	0.1275	0.4185
P- VALUE	0.23986	0.707995	0.437382	0.049578
ILA*	3.431	4.008	2.817	3.499

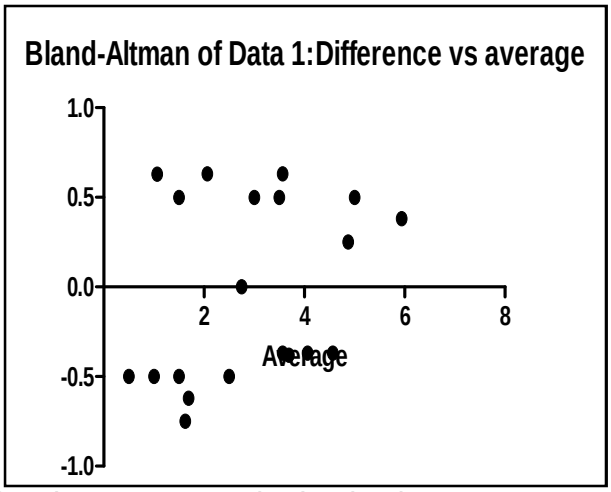
Table 1&2 provides the data on the level of agreement between the refractive error obtained by ophthalmoscopicretinoscopy& neutralization retinoscopy for different types of refractive error.

The bias of ophthalmoscopicretinoscopy was generally low (less than 0.175D), with the exception of refractive error rendered in case of high myopic astigmatism by ophthalmoscopicretinoscopy (bias = 0.4185).

The analysis of this study revealed there is no statistically significant difference in refractive error obtained by ophthalmoscopicretinoscopy and neutralization retinoscopy for different types of refractive error (P>0.005) (except for high myopic astigmatism P<0.005).

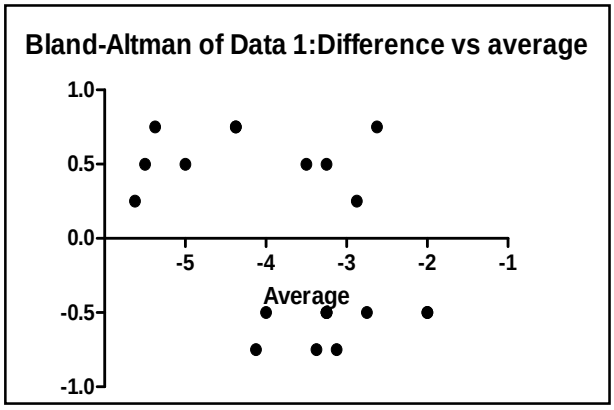
Interval between 95% limits of agreement shows that in case of mild to moderate hyperopia the refractive error obtained by ophthalmoscopicretinoscopy and neutralization retinoscopy had good level of agreement.





Graph-A

- Graph A shows the difference of refractive error obtained by ophthalmoscopicretinoscopy
  And neutralization retinoscopy average of refractive error obtained by two methods in case of mild to moderate hyperopia.



Graph-B

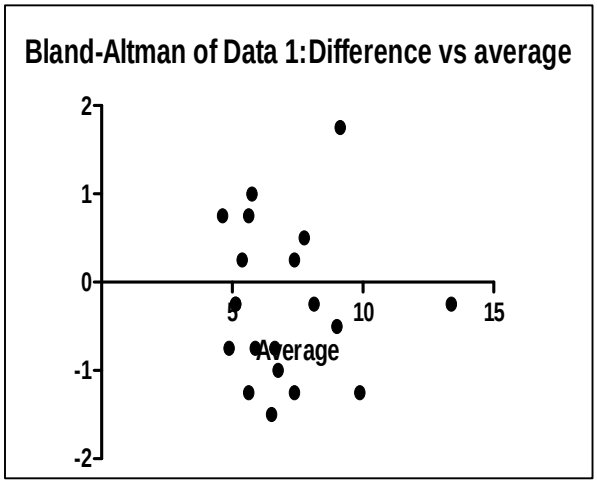
- Graph B shows the difference of refractive error obtained by ophthalmoscopicretinoscopy
  And neutralization retinoscopy average of refractive error obtained by two methods in case of mild to moderate Myopia

Graph C

- Graph C shows the difference of refractive error obtained by ophthalmoscopicretinoscopy
  And neutralization retinoscopy average of refractive error obtained by two methods in case of mild to moderate hyperopic astigmatism.

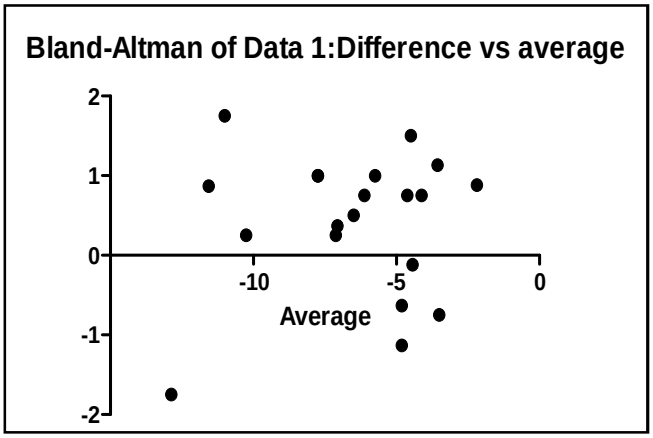
Graph D

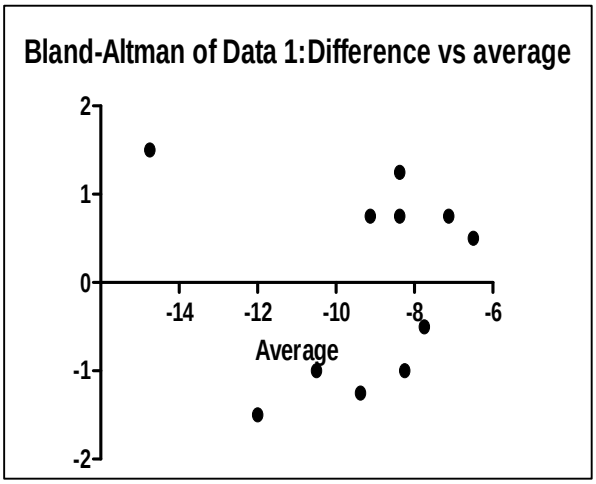
- Graph D shows the difference of refractive error obtained by ophthalmoscopicretinoscopy
  And neutralization retinoscopy average of refractive error obtained by two methods in case of mild to moderate myopic astigmatism.

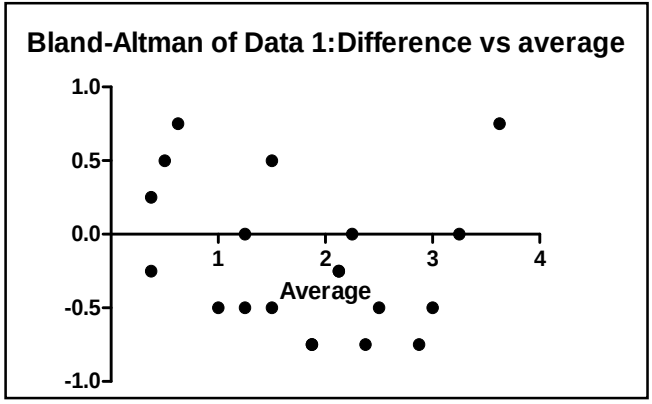


Graph E

- Graph E shows the difference of refractive error obtained by ophthalmoscopicretinoscopy
  And neutralization retinoscopy average of refractive error obtained by two methods in case of high hyperopia.

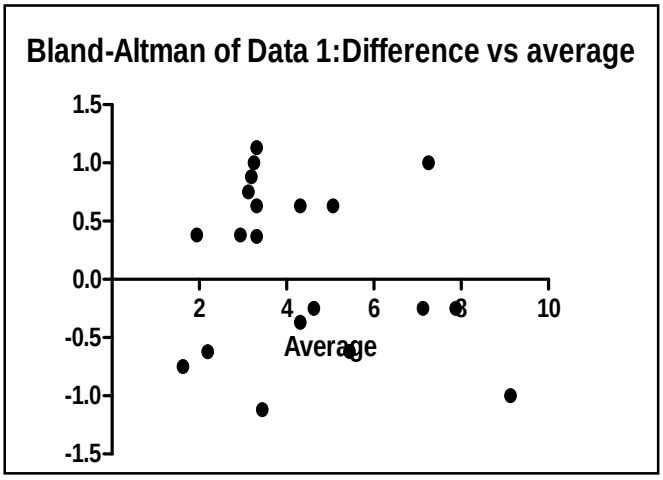






Graph F

- Graph F shows the difference of refractive error obtained by ophthalmoscopicretinoscopy
  And neutralization retinoscopy average of refractive error obtained by two methods in case of high myopia.



Graph G

- Graph G shows the difference of refractive error obtained by ophthalmoscopicretinoscopy
  And neutralization retinoscopy average of refractive error obtained by two methods in case of high hyperopic astigmatism

Graph H

- Graph H shows the difference of refractive error obtained by ophthalmoscopicretinoscopy
  And neutralization retinoscopyvs average of refractive error obtained by two methods in case of high myopic astigmatism.

DISCUSSION:

The result of the study indicates that there is no statistically significant difference between the refractive error obtained by ophthalmoscopicretinoscopy& neutralization retinoscopy for all the group of refractive error except high myopic astigmatism.

The statistics shows that the level of agreements is higher for mild to moderate hyperopia myopia and hyperopic astigmatism.

Wallace et al concluded in their study that estimation retinoscopy has good accuracy for low level of myopia, hyperopia & astigmatism. While in this study there were good level of agreement in mild to moderate, hyperopia & myopia, myopic astigmatism.

However we cannot compare our result with the study done by Wallace et al as they had used the technique of magnification & enhancement to estimate refractive error. While in this study techniques of ophthalmoscopicretinoscopy was used.

CONCLUSION:

From the study it has been concluded that Ophthalmoscopicretinoscopy has good level of agreement with neutralization retinoscopy for measurement of mild to moderate amount of hyperopia, myopia and hyperopic astigmatism.

Techniques of ophthalmoscopicretinoscopy may be useful in estimating the amount of refractive error in children who object to loose lenses held close to them

LIMITATION

- Refractive error between -2.25D to -3.00D cannot be measured.
- It can measure the error only in the gap on 1D.
- Learning curve

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9]

ROLE OF FINE NEEDLE ASPIRATION CYTOLOGY IN BREAST LESIONS & CORRELATION WITH HISTOLOGICAL DIAGNOSIS

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ABSTRACT

INTRODUCTION: FINE NEEDLE ASPIRATION CYTOLOGY (FNAC) is a relatively simple, reliable, atraumatic, economical and complication free technique for the evaluation of mass lesions. In this study we want to correlate the cytological findings of breast lumps with their histomorphological diagnosis on excision.

OBJECTIVE: To evaluate the usefulness of Fine needle aspiration cytology in diagnosis of palpable breast lumps. To correlate the cytological findings of breast lumps with their histomorphological diagnosis on excision.

METHOD: This is retrospective study of FNAC of breast done in pathology department of Government medical college Bhavnagar from July 2008 to December 2010. The patients (172 females and 3 males) presented with clinically palpable breast lumps were referred for FNAC. Their ages ranged from 15 to 80 years. In 6 cases in which

there was associated nipple discharge, cytological smears from the nipple discharge were prepared. Cytohistological correlation was done in 100 cases subjected to subsequent histopathology. Aspiration was done with 5 ml disposable syringe fitted with 23 gauge needle and material spread on glass slides was air dried for staining with May Grunwald Giemsa stain and wet fixed in 95% ethylalcohol and stained with Papanicoloau Stain and Hematoxylene and eosine stain.

RESULTS: The present study was carried out in 175 patients, out of total 175 breast aspirations 113 were benign, 55 malignant lesions and rest 7 were suspicious of malignancy. Histological correlation was done in 100 cases. Sensitivity of study was 96% and specificity for malignancy was 100%. Positive predictive value was 100% and negative predictive value was 93.1%.

CONCLUSION: This study has concluded that the fine needle aspiration cytology of breast lumps is simple, cheap, quick, reliable method to diagnose the breast lesions. Breast cytology is an effective and rapid method of diagnosis of breast diseases. It helps in deciding which patient needs an early open biopsy and when it is performed by an expert pathologist, the diagnostic accuracy of FNAC is very high.

KEY WORDS: FNAC, Breast lumps, Open biopsy

INTRODUCTION:

Fine needle aspiration cytology as a diagnostic tool was first used in Scandenavian countries[1]. There is increasing awareness and the associated anxiety and stress among women, carcinoma, compels the patients to seek medical advice. It is sometimes difficult to determine whether a suspicious lump is benign or malignant simply from clinical assessment.[2] Therefore a method of definitive diagnosis of patients who present with breast lumps at the outpatient clinic is needed in order to reassure the patients and to offer the best possible treatment. A confident diagnosis can be made in 95% of the cases through a combination of clinical examination, imaging and FNAC.[3] FNAC is a relatively simple, reliable, atraumatic, economical and complication free technique for the evaluation of mass lesions. It can be easily repeated if an adequate aspirate is not obtained.[2] FNAC has super ceded the use of frozen section examination in the diagnosis and management of patients with breast cancer.[4, 5] Different studies show that the FNAC has the sensitivity range from 80 to 98% and the specificity range of more than 99-100%.[3]

MATERIALS AND METHODS

This study was conducted at Pathology Department of Government Medical College Bhavnagar. From July 2008 to December 2010, 175 patients (172 females and 3 males) presenting in the surgery outpatient department of Sir T Hospital Bhavnagar with clinically palpable breast lumps were referred for FNA cytology. Their ages ranged from 15 to 80 years. In 6 cases in which there was associated nipple discharge, cytological smears from the nipple discharge were prepared. In cystic lesions, complete evacuation of the cyst was attempted and this was followed by needling of the wall of the cyst. The cyst fluid was centrifuged and the deposit taken for smears. Aspiration was done by Pathologist under all aseptic Precautions using 5 ml syringe with 23 G needle.

Smears were stained with H&E, PAP and Giemsa stains. Cytohistological correlation was done in 100 cases subjected to subsequent histopathology.

OBSERVATION AND RESULTS

A total of 175 Fine Needle Aspiration Cytology of breast Lumps were done during this period. Out of total 175 breast aspirations 113 were benign, 55 malignant lesions and rest 7 were suspicious of malignancy.

Statistical tools: Data were entered and analyzed with the Graph Pad.com.

Table 1 showed Age wise distribution of 175 breast lesions. Most of breast lesions found in age of 20 to 40 years and most of the benign lesions were found in age of 20 to 30 years.

TABLE 1

Age	Benign lesion %	Suspicious lesion %	Malignant lesion %
<20 year	6.86	-	-
20-30 year	26.86	-	-
31-40 year	17.14	2.29	9.71
41-50 year	9.14	-	8
51-60 year	3.43	1.14	6.29
61-70 year	1.14	-	5.14
71-80 year	0	-	2.86

Figure-1 Fibroadenoma (H&E stain)

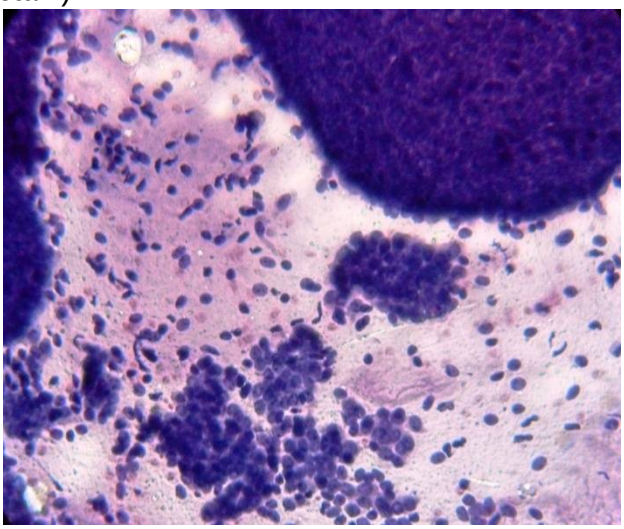
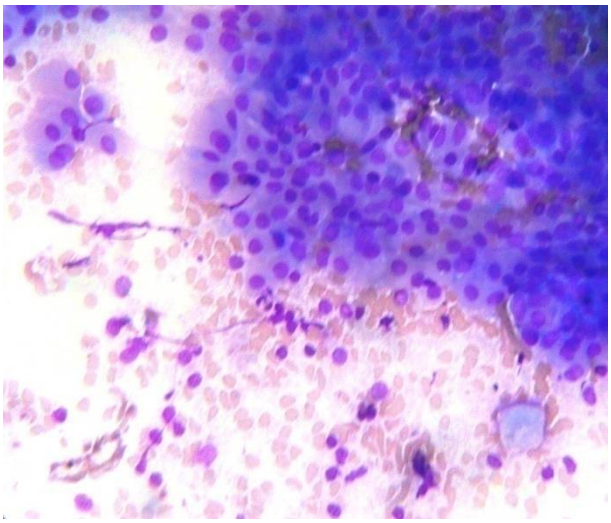


Figure- 2 Fibrocystic disease(Giemsa stain)



Our study showed fibtoadenoma was the most common benign lesion total 43 cases, 4 cases were associated with apocrine metaplasia, and 17 cases were not associated with fibromyxoid substance in cytology smears. One case of subareolar lump diagnosed as fibroadenoma underwent excision biopsy and on histology was diagnosed as mammary duct ectasia. Smear form nipple discharge cytology showed fomy macrophage over lipid background in gelectocele and one case of invasive ductal carcinoma having hemorrhagic discharge, cytology showed pleomorphic ductal cells over hemorrhagic background. The histological diagnoses, correlated with the cytological diagnoses in 100 lumpectomized cases, were given in Table 2.

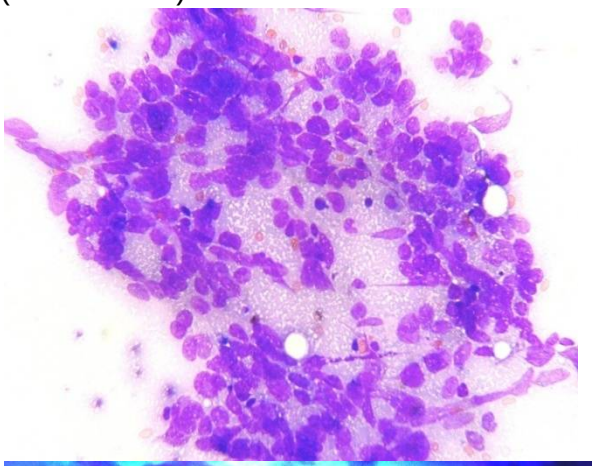
TABLE 2: Histo-cytologic correlation in 100 Cases

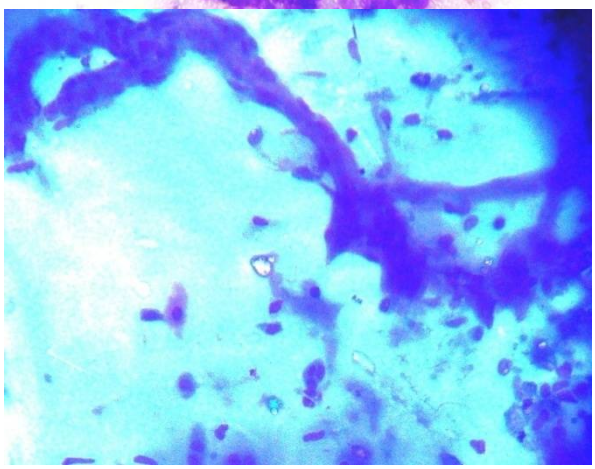
no	**Histology diagnosis**		**Cytological diagnosis**	
1	Fibroadenoma	31	Fibroadenoma	31
2	Inflammation lesion	7	Inflammation lesion	7
3	Fibrocystic disease	7	Fibrocystic disease	7
4	Lactating adenoma	2	Lactating adenoma	2
5	Tubular adenoma	1	Simple ductal hyperplasia	1
6	Duct papilloma	1	Duct papilloma	1
7	Benign Phyllodes tumor	1	Benign Phyllodes tumor	1
8	Galactocele	1	Galactocele	1
9	Gynecomastia	2	Gynecomastia	2
10	Duct ectasia	1	Fibroadenoma	1

11	Sarcoma	1	Benign mesenchymal lesion	1
12	Non hodking lymphoma or Lobular carcinoma	1	Atypical ductal hyperplasia	1
13	Invasiv ductal carcinoma	42	Ductal carcinoma Suspicious for malignancy	41 1
14	Lobular carcinoma	2	Lobular carcinoma Suspicious for malignancy	1 1

Out of 55 cases of malignancy, 48 cases of invasive ductal carcinoma and its type, two cases of Lobular carcinoma. Variant of ductal carcinoma were three cases of medullary carcinoma and one case of colloid carcinoma, which were conformed on histopathology.

Figure- 3 Ductal carcinoma (Giemsa stain) Figure- 4 Colloid carcinoma (Giemsa stain)





All cases of malignancy in FNAC proved to be malignant lesion by biopsy that is described in Table 3. Out of 7 cases of suspicious cytology two cases were biopsied and one diagnosed as invasive ductal carcinoma and second case diagnosed as lobular carcinoma on histopathology.

One case had bilateral huge lump showed few streaming benign ductal epithelial cells, at some places cells form Indian file like pattern and background showed large number of small lymphocytes diagnosed as atypical ductal hyperplasia, underwent excision and histology showed small duct surrounded by targetoid pattern of small tumor cells. Differential diagnosis of NHL and lobular carcinoma was given and IHC suggested.

One case diagnosed as benign mesenchymal lesion showed few groups of bland spindle cells over hemorrhagic background was diagnosed as sarcoma on histology. All statistical parameter were calculated with help of Table 3

TABLE 3

Biopsy / FNAC	Malignant lesion	Non Malignant lesion	Total
Malignant	**42**	**-**	**42**
Non- Malignant	**04**	**54**	**58**
Total	**46**	**54**	**100**

DISCUSSION

In our study 100 patients who underwent excision biopsy, in 96 patients the FNAC report matched with the final histopathology report. Thus there were 96 true positives, 4 false negatives and no false positives, no true negatives, sensitivity would be 96% and the specificity of FNAC for malignancy would be calculated as 100%. The positive predictive value of a test indicates the probability that the patient with a positive test has, in fact, the disease in question was 100%. The negative predictive value of a test indicates the probability of a patient with a negative test not having the disease in question was 93.1%. Our study was conducted on 172 female and 3 male patients with a palpable breast lump each of them underwent fine-needle aspiration cytology of the lump but only 100 cases undergone excision surgery either in the form of a lumpectomy or a definitive surgical procedure like a mastectomy, depending up on the diagnosis of aspiration cytology.

The aspiration cytology findings were then matched with the final histology report to see as to how accurate FNAC was as compared to open biopsy i.e., to assess the cyto-histologic correlation. None of our patients was subjected to a core biopsy and its correlation with FNAC was not a part of our study. Our study also did not attempt to draw any conclusions as to whether one diagnostic modality could replace the other.

Patients were selected regardless of their religion, occupation and financial status. All these patients underwent an FNAC and patients who did not follow up after FNAC were included in this study. Only 100 patients included in this study were admitted and underwent a definitive surgical procedure as demanded by the FNAC report. It varied from excision biopsy or incision and drainage to a modified radical mastectomy.

In our study, there were 96 true positives, 4 false negatives, no true negatives and false positives. As shown previously, sensitivity and positive predictive value of FNAC in our study were calculated as 96% and 100%, respectively, while specificity and negative predictive value for malignancy were 100% and 93.1%, respectively. While the value of sensitivity of FNAC in our study was 96%, an absolute value of 90.9% was obtained by the series by Hussain et al. [6] In a series of 100 patients, Dennison [7] reported the sensitivity of FNAC as 90.4% whereas Wu et al. [8] compared postoperative pathology results and showed a sensitivity of 75% for FNAC, while trucut biopsy showed a sensitivity value of 92% and frozen section 100%. Westend et al.[9] depicted a value of 92% for FNAC which was slightly lower than our findings.

As already discussed above, the positive and negative predictive values of a test are the ones which measure the performance of a test by measuring its "predictive value" which reflects the diagnostic power of the test. They depend upon the sensitivity, specificity and disease prevalence. In this regard, Franco et al.[10], in his study of 300 patients on the utility of FNAC, reported a positive predictive value of 100% and a negative predictive value of 92%. A very large study of 1,297 patients done by Choi et al.[11], on correlation of FNAC and histopathology reports, found the positive predictive value to be 98.4% and a negative predictive value of 88%. In this context, the following Table 4 showing the values obtained in several similar studies was relevant.

TABLE 4

Name of study	Sensitivity	Specificity	Positive predictive value	Negative predictive value
Ishikawa et al. [12]	86.3%	98.2%	97.9%	-
Watson et al.[13]	74%	96%	98%	-
Choi et al.[11]	77.7%	99.2%	98.4%	88%
Medina et al.[10]	82.6%	-	100%	92%
Jayaram et al.[14]	97.4%	92.4%	-	-
Yeoh et al. [15]	79%	98%	92%	94%
Ariga et al.[16]	99%	99%	99%	99%
Ariga II et al.[16]	98%	97%	99%	86%
Hussain et al.[6]	90.9%	100%	-	-
Muhamedet al.[17]	90.6%	100%	100%	99%

It can be seen clearly that our results match well with those of previous studies reported in the literature. While attempting to find the reason for variation in the values in some of the studies, we felt that the commonest cause was probably related to expertise of the person doing the aspiration. Maximum variations in terms of lower values were in the sensitivity, that's why Procedure of performing FNAC fairly standardized by now in all institutions, the only important variable remains the person doing the actual aspiration. In such a scenario the procedure itself should be perform by only experience pathologists. In this way, a major obstacle in getting better results is removed and better cyto-histologic correlation is obtained.

CONCLUSION AND SUMMARY

Fine-needle aspiration cytology is a patient friendly, easy, reliable, repeatable and simple diagnostic test. When performed by an expert pathologist, the diagnostic accuracy of FNAC is very high. A high sensitivity and a high positive predictive value proved that a positive FNAC in the breast means a definite diagnosis of the concerned pathology if compared with the final histology report. The high specificity and a high negative predictive value for malignancy illustrated the high accuracy of FNAC in the diagnosis of malignancy in the breast. Very importantly, a report negative for malignancy was highly accurate (93.1%) in predicting an absence of malignancy. Thus, we have no hesitation in concluding that FNAC is a very important preliminary diagnostic test in palpable breast lumps, and done by expert hands, the results show a high degree of correlation with the final histopathology report.

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CASE REPORTS

CASE REPORT 1

LAPAROSCOPIC MANAGEMENT OF A PERFORATED DUODENAL ULCER. CASE REPORT FROM A MUNICIPAL HOSPITAL.

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ABSTRACT

Laparoscopic repair of peptic ulcer perforation was first reported in 1990 [1, 2]. Since then the world over, more and more perforations are being repaired by laparoscopy [3, 4]. However these advanced procedures are largely out of the reach of the common population in our country and for patients in our municipal hospitals a laparotomy is mandatory for the treatment of a perforated duodenal ulcer. We present this case report of 30 year old male with duodenal ulcer perforation managed by laparoscopy in a municipal hospital.

Key Words: Duodenal ulcer Perforation Laparoscopy Graham's Patch Omentoplasty

Laparoscopic Management of a perforated duodenal ulcer. Case report from a municipal hospital.

Case Report

30 year male presented to the emergency department with an acute onset of severe abdominal pain. The pain started eight hours back. It was sudden in onset and excruciating, more in the upper abdomen. The patient's pulse was 110 beats/min and the blood pressure was 100/70 mm Hg. The abdomen was guarded and rigid and liver dullness was obliterated. Chest X-ray revealed free gas under both the domes of the diaphragm. It was diagnosed as perforative peritonitis. The patient was resuscitated and then taken up for Diagnostic laparoscopy surgery.

Surgery was performed under general anesthesia. The patient was positioned supine in the reverse Trendelenberg position. The operating surgeon stood on the left of the patient while the assistant stood on the right side. The peritoneal cavity was accessed at the umbilicus with a 10mmtrocar under vision by Hassan's technique. Peritoneal cavity was insufflated with carbon dioxide and the pneumoperitoneum was maintained at a pressure of 12mmof Hg. 10mm 0^{o} telescope attached to telecam camera (Karl Storz, Tuttlingen, Germany) was used. Two 5mm working ports were placed one on either side in the mid-clavicular line just above the level of the umbilicus. One 5 mm assisting port was placed on the left mid-clavicular line just below the level of the umbilicus to retract the greater curve of stomach.

The peritoneal cavity had a bilious contaminant of 1500ml which was sucked out and lavage given with warm saline. There was a 5 mm diameter perforation on the anterior wall of the first part of duodenum, thus the diagnosis was confirmed. The rest of the stomach and duodenum and the rest of small and large bowel was normal, no scarring, stricture or lymphadenopathy was noted. The size of the perforation was measured using the tip of 5mm suction cannula as a guide, it was decided to primarily repair the perforation with live omental patch.

A Szabo- Berci "parrot jaws" needle driver (Karl Storz, Tuttlingen, Germany) was used for suturing. The needle and suture were introduced through the 10mm operating port on the left. Three interrupted sutures of 2-0 silk were placed with a good bite of full thickness healthy tissue taken longitudinally across the perforation and kept separated without tying. A live healthy omental flap was taken with intact blood supply and placed over the perforation and the sutures were intracorporeally tied over the flap completely sealing the perforation. The

abdominal cavity was lavaged again till the returning fluid was clear and all the fluid was aspirated. 16 Fr Ryle's tube was place through the right 5mm port as a drain in the subhepatic area.

The patient was put on broad spectrum intravenous antibiotics and proton pump inhibitors. As the bowel sounds returned, oral intake was allowed on the second day post surgery. On the fourth day the drains were removed and the patient was discharged. Patient recovered uneventfully, there was no wound infection, sutures were removed on the seventh day and he resumed work.

Discussion

Minimal Access surgery has assumed an ever expanding role in gastrointestinal surgery since the introduction of laparoscopic cholecystectomy which has become a gold standard now [1]. Similarly, in the case of perforated peptic ulcers, laparoscopy is proving to be beneficial and more cases than earlier are being managed by laparoscopy [1, 2].

The total trauma undergone by the patient is the sum of the access trauma and the surgical procedural trauma. When the access trauma of a midline laparotomy is relatively large compared to the procedural trauma of patch repair for perforated peptic ulcer, the benefit of minimal access surgery will be maximized [2]. The laparoscopic approach reduces the access trauma, can confirm or refute the diagnosis, and can be used to perform the same repair procedure and lavage as open omental patch repair [2, 3]. It has been advocated by others as a way of performing diagnostic laparoscopy to confirm or disprove the diagnosis, and if the perforation is already sealed off by omentum, it is left alone and peritoneal lavage is performed by laparoscopy [2, 3].

After the initial reports of laparoscopic treatment of perforated peptic ulcer, different techniques of ulcer closure have been tried; suturing [4], gelatin sponge and fibrin glue [5, 6], stapled omental patch repair [7] and gastroscopy aided insertion of the ligamentum teres hepatis [8]. Other workers have advocated the use of a gastroscopic-guided omental plug to close the perforation [9]. Laparoscopic Graham's omental patch repair is technically more demanding and surgeons need specific training in laparoscopic suturing technique [2, 3]. It is preferable to do intracorporeal suturing against extracorporeal knotting because the latter is likely to cut through the friable edge of the perforation [3]. Laparoscopic perforation closure can be performed effectively with viable Graham's patch omentoplasty as in conventional surgery.

The current literature demonstrates that; when compared with open repair, laparoscopic repair is associated with a shorter operative time, reduced postoperative pain and analgesic requirements, a shorter hospital stay and earlier return to normal daily activities [4, 5, 6]. The complication rate for laparoscopic repair is low; the laparoscopic procedure is associated with fewer chest infections and potentially less wound infection compared with open repair. Laparoscopic surgery minimizes postoperative wound pain and encourages early mobilization and return to normal daily activities [10, 11, 12, 13]. The benefit of early discharge and early return to work may outweigh the consumable cost incurred in the execution of the laparoscopic procedures [2, 3, 4, 5, 6].

The change of disease pattern in perforated peptic ulcer favors a simple repair procedure [3]. With the demonstrated benefits of rapid recovery, early ambulation and discharge, laparoscopic repair of perforated peptic ulcers should be the procedure of choice even in the

setting of a municipal hospital. As in the case under discussion Patient recovered earlier with fewer complications and could be discharged on the 4th day and returned to work by 10th day. Whereas in open cases our patients remain in the hospital even at the end of the week and need 1-2 months to return to work. The role of laparoscopic surgery in emergencies is well documented [14] and laparoscopy should be incorporated into the general surgeon's armamentarium for the management of patients with peritonitis.

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CASE REPORT:2
AVULSED MAXILLARY INCISORS

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Abstract:

Introduction

The incidences of complete displacement of tooth from its socket in alveolar bone due to trauma are increasing day by day. Immediate replantation ensures the best possible prognosis. Dentists should always be prepared to give appropriate advice to the public about first aid for avulsed teeth. An avulsed permanent tooth is one of the few real emergency situations in dentistry.

Observation

Here in present case we have tired to put all efforts to conserve the vitality of periodontal ligament to ensure successful replantation of the maxillary incisors. Hence we could achieve the desired result and we could save the maxillary incisors.

Conclusion

Our study suggest that replantation of an avulsed tooth should be done as soon as possible using appropriate transport medium, storage medium and splinting. Regular follow up after treatment by a dentist and maintenance of oral hygiene will show good prognosis.

Introduction:

Traumatic injuries have become more common these days and the incidences of dental trauma have become comparatively higher. Trauma might involve both the hard and soft tissues. The success of the treatment of traumatized teeth revolves around the status of periodontium since it is a vital structure. Hence treatment of traumatic injuries are quite complex and at times requires a multi disciplinary approach.

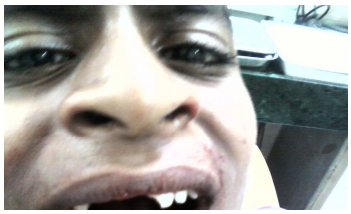
Avulsion is known as complete displacement of tooth from the alveolus. The incidences are 1% to 16% in permanent teeth and 7% to 13% in primary teeth in school going children age. Replantation for avulsed teeth should be carried out immediately. The maxillary incisors are frequently avulsed teeth while lower jaw is less affected.

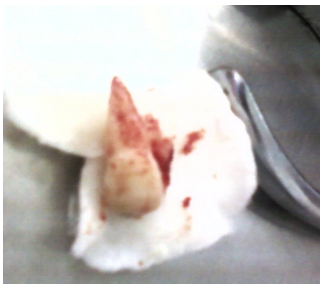
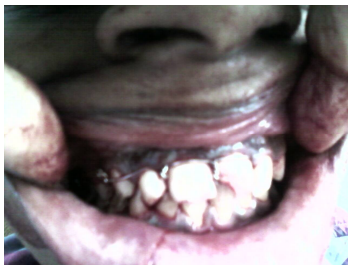
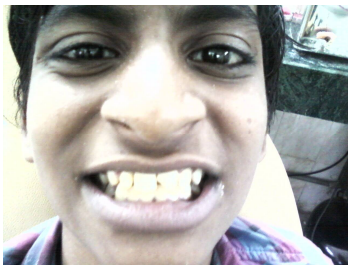
Researchers have shown that relatively good success rate was achieved when the tooth is replanted immediately. Therefore this technique for replantation assumes that avulsed tooth should be located quickly and replanted at the site of injury itself if possible before reaching to the dentist. If not the tooth has to be immediately placed in a suitable transport medium like saliva, buccal vestibule, milk, coconut water etc. In a tooth with an open apex there are possibilities of revascularization of the pulp as well as continued root development.

Case Report:

A sixteen year old boy reported to the department with avulsed maxillary right central incisor, lateral incisor and canine after one hour of injury. The teeth were soaked in a water. There was swelling and lacerations on upper lip and lower lip. His parents and boy, both were very anxious and disturbed due to loss of front teeth. They were assured that his teeth could be saved and they were relaxed. The teeth were rinsed with water and placed in a saline solution. Local anesthesia was given and as much care was taken not to hold teeth by root to save the vitality of periodontal ligament. The debris of dust and dead tags of the tissues over root were removed with wet sponge of saline very gently. Then sockets were prepared for replantation. Sockets were gently aspirated and irrigated with saline, then the teeth were replaced in the sockets and manually compressed to its original position.

Then the teeth were splinted with ligature wire and interdental wiring was performed along with light cure composite resin. Patient was kept under antibiotics and analgesics. He was advised for tetanus consultation within 48 hours. Patient was also advised not to bite on splinted teeth and to take soft diet and ask to maintain good oral hygiene by proper brushing and chlorhexidine rinses. In the present case patient was tried for replanation in an attempt to revitalize pulp. Patient was called after six to eight weeks because of partly involvement of alveolar bone.



Results: w nd that teeth were
ce / at all. Patient was
hi and radio graphical evaluation root canal treatment was performed. Patient was recalled at interval of every six months. There was no sign of pain, mobility found within six months. Patient was kept under observation for further evaluation.

Discussions: A traumatic dental injuries are emergencies that the dentist must be able to assess rapidly and manage appropriately. The determination of treatment plan is very important in case of avulsed teeth. In present study a 16 year old boy with avulsed right maxillary incisors was treated with replanation technique. After thorough investigation of vitality of teeth the root canal treatment was done after six weeks of replanation not at the time of replanation with the hope to revasularize the pulp because pulpal necrosis is usually demonstrated after three weeks. The results in this case were satisfactory clinically as well as radio graphically and patient was kept under observation for further study.

Conclusion: The success of avulsed tooth is directly proportional to the time and storage type of the tooth. Clinical studies have shown that teeth replaced within 20-30 minutes have the best prognosis, so reattachment success will be much higher. The choice of storage for preserving traumatically avulsed teeth is important for the success of future replantation. Ideally, the tooth should be stored in milk, saliva, physiological saline and clean water.

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OCCUPATIONAL HAZARDS AND DISEASES RELATED TO THE PRACTICE OF ANAESTHESIOLOGY.

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Abstract :
Diseases & occupational **hazard** related the anaesthesiologists were **evaluated**. As anaesthesiologist spend more time in operation theatre in unhealthy atmosphere. The working **pattern** of anaesthesiologist in operation theatre may create hypertension, **stress** induced **diseases**, cancer, respiratory disease & behavioural changes, sleep disorders, **radiological hazards**, hepatitis & HIV **infection**. Anaesthesiologist must be very careful to **be free from it.**

Introduction:

The practice of anaesthesiology is not without risks to the anaesthesiologist. The operating room (OR) in which the anaesthesiologists spend most of their working time is regarded as an unhealthy workplace due to the potential risks it offers.

Classification of occupational hazards :

Occupational hazards are divided into five groups according to their nature:

- Physical Risks
- Chemical Risks
- Biological Risks
- Ergonomic Risks
- Risks Of Accident.

Physical Risks

This group of risks is constantly present at work in operating room responsible for a large number of occupational diseases , such as hypertention, stress and cancer.

The noise in the OR can reach over 100 db when associated with normal tone conversation and noise is intermittent, there is no need to use hearing protectors, but awerness of reducing OR noise is necessary. Excessive noise is a cause of distraction and difficulty in concentrating of professionals, which may lead to possible errors related to anaesthesia. Noise exposure is associated with stess-related disorders, respiratory conditions , and behavioural changes, resulting in sleep disorders and involving endocrine and neurological systems, thus becoming a causative agent of disease.

The emergence of minimally invasive surgical techniques, endoscopic procedures, interventional radiology, and need of anaesthetic care during radiological examinations was followed by increased exposure to ionising radiation and its consequences. Ionising radiation is emitted by X-rays and radioactive isotopes that release gamma rays or alpha and beta particles. Ionising radiation promotes the formation of free radicles in irradiated tissues, and cell destruction, as well as the possibility of chromosomal changes and development of malignant tumors. Exposure to ionizing radiation is cumulative and requires constant dosimetry measurements. There is no knowledge of a safe dosage below which the induction of malignancy does not occur. Thus , preventive measures regarding radiation exposure should be established.

Protection from radiation is mandatory. Use of barriers such as lead aprons down to the knees, which provide gonadal protection, glasses with protective lenses to protect the retina and cervical collars to protect thyroid. Maintaining a minimum distance of 90 cm from the primary source of ionizing radiation emission promotes a complete reduction of primary radiation exposure.

Working environment temperature is another risk that increases the possibility of physical accidents caused by exposure to both low and high temperatures, leading to discomfort with thermal effect on the ability of concentration and attention of anaesthesiologists, impairing patient monitoring.

Chemical Risks

The presence of waste anesthetic gases and vapors in the OR was associated with several diseases and occupational discomfort. Several factors are related to OR contamination by waste inhalational anaesthetics

CAUSES OF OPERATING ROOM CONTAMINATION.

- Failure to disconnect flow control valves
- Misfitting masks –flushing breathing circuit – Filling vaporizers

- Tracheal tubes without cuffes
- Pediatric respiratory systems
- Side stream sampling of gas analysers
- Occlusion of hospital disposal system (vaccum)
- Leakage in the low pressure circuit (absorbing CO2 reservoir), gaskets, and hoses

The halogenated volatile anesthetics in OR atmosphere contribute to the pollution of the pollution of the place and are related to the occupational diseases, although investigations of its effects are not yet conclusive. Chronic exposure has the potential to develop sensitivity to hepatitis, headache, nausea, drowsiness, fatigue and irritability.

Occupational exposure to inhaled anesthetics may be related to oxidative stress in the population working at OR. Environmental limits for inhaled anesthetic concentrations are listed in parts per millions(ppm). The upper limits of nitrous oxideare 25 ppm, halogen are 2ppm and when combined with N2O it is reduced to 0.5 ppm. The used electrocautery and non-ionizing radiation emanate intothe OR atmosphere smoke composed of organic waste matter, such as DNA viral infectious particles with pathogenic potential.

Handling of drugs such as antibiotics may induce bacterial resistance through drug micro-dose chronic contact with the skin and mucous membranes. Thus, it is recommended that the manipulation of these drugs be done with gloves.

Biological Risks

Anesthesiologists are exposed to the risk of infection transmission during contact with the patients and their secretions. The main diseases with risk of transmission into the OR environment are hepatitis B and C, herpes virus and HIV. Glove Contamination during venipuncture procedures occurs in 18% of cases, which represents a high risk of exposure to infectious agents if gloves are not used.

The Brazilian National Agency of sanitary vigilance recommends the adoption of universal precautions to avoid contamination with infectious agents..Regarding accidents with the risk of HIV contamination, the recommended measures such as rapid HIV testing and use of chemoprophylaxis should be performed. The latter with the combination of zidovudine and lamivudine and, possibly nelfinavir or Indinavir.

Universal Precautions to Avoid Contamination with Infectious Agents.

- Using gloves, wash hands after removing them
- Using masks, goggles, aprons and boots
- Do not reinsert needle into their covers, put them in appropriate containers after use
- Re-sterilization of all material used in anesthesia in 2% solution of sodium hypochlorite/water
- Avoid mouth-mouth resuscitation, use AMBU
- Professionals with exudative lesions are scaly dermatitis should not have direct contact with the patient or with the equipment used
- Transport all material with blood in suitable container that does not allow leakage

- Isolate bodily substances, using barriers to avoid possible contact
- Make precise indications for transfusion of blood and derivatives, preferring, whenever possible, autologus blood.

Ergonomic Risks

Workplace adequacy to the anaesthesiologist consists of ergonomically adjusting the OR. The height of the anaesthesia machine, operative table, side tables, and monitors should br adjusted to the anaesthesiologist's height.

Awkward postures during work are responsible for developing spinal diseases such as herniated discs and lumbar muscle contractions, which may lead to absence from work. Attitudes such as the adequacy of the operating table height for performing vascular punctures, neuraxial anesthesia, and tracheal intubation, among others, minimize the risk of developing these diseases. Thus, the ergonomic design of the workplace is relevant to reduce the risk of accidents and occupational diseases.

Risks of accidents

The use of a greater number of electrical appliances in the OR increased the risk of accidents with electricity. Inappropriate electrical installations increase the possibility of electric shocks, which can have fatal magnitudes. Correct planning of the number and distribution of electrical outlets, and avoiding extentions and outlet plugs minimize the occurrence of such accidents. For electrical accident prevention, OR grounding should be adequate for the number of devices used simultaneously.

The use of the devices promotes the generation of a low frequency electromagnetic field in the OR. Measurements indicated that anaesthesiologists are exposed to a magnetic field higher than the recommended by the Swedish Board for Technological Accreditation, which should be less than 2 mG.

The risk of fire, although not reduced by the non use of inflammation anesthetics , is still present nowadays with the use of material with oxidizing elements triggering spark. Occurrence of fire with a combination of oxygen and laser, electrocauterty and intestinal gas or gauze and bandages are reported in the literature.

Occupational diseases

Anaesthesiology is a medical speciality that has potential for developing occupational diseases related to the risks discussed above.

The requirement of extended working hours and short interval between shifts are associated with stress, Hypertension, depression, and abuse of illicit drugs.

Exposure to certain products increases the risk of diseases, such as latex allergy, as several materials commonly used by anaesthesiologists have this component. Reaction may occur by three clinically distinct types: irritant contact dermatitis, Type IV delayed hypersensitivity and Type I immediate hypersensitivity mediated by Ig E. Latex sensitivity varies from 12.5-20%, making anaesthesiologists vulnerable to allergic reactions either as patients or during their professional activity. This sensitivity may lead to physical disability to perform their work and exchange of medical field. Stress generated by situations found in OR activities, intense level of responsibility, and irregular working hours represent important risk factors for the development or worsening of various cardiovascular diseases.

Risk factors for occupational diseases are associated with work related psychiatric disorders, such as chronic fatigue syndrome, depression, and abuse of drugs and alcohol, which are frequent in the anesthetic activity.

Anesthesiology is among the specialities affected by this problem. The responsibility imposed on it can be considered a stress factor for the professional on duty, generating malaise, sleep disturbances, excessive tiredness, irritability, restlessness, low tolerance to frustration, impatience, feelings of depression, and depersonalisation, leading to affective detachment and apathy.

In the field of anaesthesiology, there are other factors that also cause high stress, such as time constraints, interference in personal and family life, medical legal aspects, miscommunication with colleagues, possibility of clinical complications in the perioperative period, little professional recognition, prolonged work shifts, responsibility of any complications, and unrealistic professional expectations.

These professionals are also more vulnerable to develop addiction to medications, particularly opioids.

There is withdrawal from family, friends, and leisure activities; mood swings, episodes of anger; irritability and hostility; longer permanence at the hospital even when off duty; more duty calls and extra calls ; refusal towards restroom visits; weight loss; pallor and request of increasing or inappropriate amounts of opioids for specific cases.

Conclusions

Control of occupational hazards to which anaesthesiologists are exposed daily is necessary to prevent the development of injury and/or disease often disabling. The joint effort of anaesthesiologists and hospital managers are of vital importance for the development of an appropriate workplace, with reduced risks to the good practice of anaesthesiology, which contributes to decreased absenteeism, improved care provided to patients, and quality of life of anaesthesiologists..

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