Original Research Paper

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COMPARISON OF INJECTION DEXMEDETOMEDINE ADDED TO LOCAL ANAESTHETIC INFILTRATION WITH INTRAVENOUS DEXMEDETOMEDINE AND LOCAL INFILTRATION FOR PERIOPERATIVE HAEMODYNAMIC STABILITY,SEDATION SCORE,OPERATIVE FIELD AND POSTOPERATIVE RECOVERY IN ADULT PATIENTS UNDERGOING TYMPANOPLASTY BY POSTAURICULAR APPROACH.

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ABSTRACT

Aim: Injection Dexmedetomedine, a potent alpha 2 agonist is used effectively asperioperative intravenous sedation along with local infiltration forTympanoplasty.But intravenous use of this drug can cause severe bradycardia, hypotension and postoperative sedation for prolong time. This can delaypostoperative recovery and discharge.So use of injection Dextmedetomedine added to local anaesthetic infiltration with same advantage avoiding side effects of intravenous Dexmedetomedine.

Methodology: Sixty patients of .age gp 18-60 yrs scheduled for Tympanoplasty under localanaesthesia to be randomly divided into two equal group. In Gp A 10 ml of 2 % adrenalised lignocaine infiltration to be given along with intravenousDextmedetomedine bolus 1 microgram per KG body wt followed by0.2microgram per Kg per hour infusion.In GP B injection Dextmedetomedine one microgram per Kg to be added to 2 % adenalised xylocaine for infiltration.Comarison to be done for onset and duration of analgesia, perioperative haemodynamic parameter, sedation score ,grade of bleeding and postoperative recovery score. Qualitative data to be presented as frequency,percentage and analysed using Chi suare test. P value of < 0.005 to be considered as significant .

Results: Haemodynamics like mean blood pressure and heart rate was statistically significant (P<0.005) with more bradycardia and hypotension in GP A .Also sedation score was also statistically significant (P<0.005) with patients more deeply sedated intraoperatively and in recovery room in GP A .Postoperative recovery score was statistically significant (P<0.005) ,GP A showed delayed recovery from sedation.

Conclusion: We can use Dexmedetomedine as a adjuvant to local anaesthesia infiltration for tympanoplasty with advantage of calm cooperative patient, adequate analgesia without perioperative haemodynamic instability and early postoperative recovery.

KEYWORDS : Dexmedetomedine,Tympanoplasty,Local infiltration

INTRODUCTION:

The procedure like Tympanoplasty in adults can be done under local infiltration along with sedation under monitored anaesthesia care. It can be done under only local infiltration also. But patient are not cooperative due to anxiety, noise of suction /drilling machine, manipulation of instruiments and position of neck. So sedation with MAC makes patient comfortable and also cooperative. Commonly used sedatives are benzodiazepines, opioids, propofol and dexmedetomedine. Each one of this has varying degree of sedative effect as well as side effects along with it. Midazolam has quick onset but prolonged half life can cause prolonged sedation. Opioids has sedative as well as analgesic property but can cause apnea and hypoxaemia. Propofol has got good sedative effect but can cause cardiorespiratory depression. Dexmedetomedine is a selective alpha 2 agonist with good sedative, analgesic and symatholysis property without major respiratory depression. Because of these properties Dexmedetomedine is increasingly being used as sedative for MAC for various surgical procedure. But sympatholysis can cause bradycardia and hypotension perioperatively. It has been studied that perioperative hypotension can cause acute kidney injury and myocardial injury also.

The intravenous doses of Dexmedetomedine which are recommended and used as sedative can cause above side effects. Also patient is sedated deeply so surgeon is unable to check intraoperative effectiveness of procedure done. So use of Dexmedetomedine as adjuvant to local anaesthesia can improve onset of block ,better quality of block , calm and cooperative patient with longer postoperative analgesia. dexmedetomedine has been used as adjunvant to local anaethesia in peripheral nerve block .But few studies has been done as adjunvant for local infiltration for Tympanoplasty.

In this prospective study Dexmedetomedine as a adjuvant to local infiltration was compared to intravenous Dexmedetomedine and local infiltration. Primary outcome measures are perioperative haemodynamic stability without side effects, calm cooperative patient and secondary outcome measures are frade of bleeding, postoperative analgesia and postoperative recovery score.

METHODOLOGY:

It was randomized, double blinded , prospective study in which 60 patients of ASA 1 and 2, age 18 – 65 yrs,weight 40 to 80 kgs scheduled for Tympanoplaty by postauricular approach under Local anaesthesia with Monitored anaesthesia care were randomly selected .All the patients underwent preanaesthesia check up and were thoroughly investigated as per protocol. patients were given proper information about the procedure and study they were under going. Written Informed consent was taken from all participants. Patients were kept fasting 8 hrs prior to surgery. Sensitivity to local anaesthesia was done in ward. The patients with known history of allergy to local anaesthesia, cardiac disease, cental peripheral neuropath, coagulopathies, pregnant women were excluded from this study. patients were randomly divided in two equal grops GP A =30 and GP B =30.Intravenous access was secured for all patients and injection Emset was given. Once patient inside operating room , monitores attached for monitoring pulse, blood pressure,ECG, Spo2.Nasal prongs with oxygen connected for all patients.

GP A participants received injection Dexmedetomedine 1 microgram per Kg BW as bolus over 10 mins followed by infusion of 0.5 microgram per Kg BW per hour strted. Infiltration was given by surgeon with 10 ml 2% adrenalized lignocaine.

GP B participants received inj Midazolam 0.01 mg /Kg bw followed by infiltration of 2% adrenalized lignocaine 10 ml with injection Dexmedetomedine 1 microgram per Kg BW as adjuvant.

The incision was taken after assessing analgesic effect of local infiltration.The drug solution was prepared by anaesthetist not involved in study.The surgeon performing block attending anaesthetist and patients were blinded to treatment group.Monitoring of data was done baseline ,after sedation,at the time of infiltration ,at the incision intraoperatively and postoperatively in recovery room.As a rescue analgesia if needed infiltration of 2% adrenalized lignocaine was given and injection midazolam 0.01 mg per Kg BW as a sedative for both groups.Total rescue doses were recorded.The protocol was specified for maximum of 3 doses of injection midazolam to be given.If patient is uncooperative,the study would be discontinued and sedation technique would be converted to alternate sedative or anaesthesia technique.The maintenance infusion was discontinued approximately 20 minutes before end of procedure.Adverse events like bradycardia(HR < 50),hypotension (drop in systolic blood pressure >20 % of baseline or MAP < 60 mm of Hg),desaturation (Spo2<90%) nausea vomiting within 2 hrs of procedure were noted.Sedation score was aseesed by Ramsay sedation score , analgesia was assessed by VAS score and intraoperative grade of bleeding, surgeons and patients satisfaction score was also assessed.

STATISTICAL ANALYSIS :

All the quantitative data to be presented as mean and SD and compared using students t test .qualitative data such as sedation score, grade of bleeding to be presented as frequency , percentage and analysed using

Chi Square test .Confidence level of the study was kept at 95% hence a P value of <0.05 to be considered as significant.

RESULTS:

All the sixty selected patients completed study without any dropout .Demographic parameters showed no difference in both the groups .(table 1).There was no statistically significant difference in baseline haemodynamic value (table 2).Both the groups were similar with respect to patients characteristics,ASA physical status,and duration of surgery.Also there was no statistically significant difference in patients and surgeons satisfaction score (table 3) and grade of bleeding between two groups.Haemodynamics mean blood pressure and heart rate was statistically significant (P=<0.005) with more bradycardia and hypotension in GP A .Also sedation score was also statistically significant (P=<0.005) with patients more deeply sedated intraoperatively and in recovery room in GP A .Postoperative recovery score was statistically significant (P=<0.005) ,GP A showed delayed recovery from sedation.

Table 1: Demo Graphic Profile

	GPA	GPB	Pvalue
Age	27.08	29.78	0.580
Gender			
Female	21%	13%	
Male	9%	17%	

Table 2: Baseline Haemo Dynamic Value

	GPA	GPB	Pvalue
Systolic BP	120.10	121.08	0.623
Diastolic BP	70.02	73.23	0.660
Mean BP	85.00	88.21	0.120
HR	72.18	72.28	0.730
RR	12.15	12.50	0.061
Spo2	99.10	99.30	0.092

Table 3: Satisfaction Score.

	GP A	GP B	P value
Surgeons satisfaction score	8.05	8.40	0.134
Patients satisfaction score	8.15	8.55	0.156

DISCUSSION:

Local infiltration analgesia which is defined as the administration of local anaesthetics with or without adjuvants in the different tissue planes peri operatively is a commonly used anaesthetic procedure for middle ear surgeries. During local anaesthesia surgeon can test hearing and detect complication intraoperatively. It is also devoid of cimplication associate with general anaesthesia, reduces hospital stay, and expenditure.

At the same time anxiety of patient can lead to sympathetic stimulation and there may be bleeding leading to surgeons poor visibility and may lead to graft failure.Also slight movement by patient can also disturb surgeon considering microscopic nature of procedure.The success of surgery under local anaesthesia demands patient cooperation that can be achieved by adequate sedation with haemodynamic stability and early recovery so that patient can be discharged early.

Dexmedetomedine when used as adjuvant with local infiltration,it produces analgesia by reducing the release of norepinephrine and causing alpha 2 receptor independent inhibitor effect on nerve fibre action potential.Infiltration of dexmedetomedine along with local anaesthesia may be useful to avoid adverse haemodynamic effects of IV administration while still providing adequate sedation and analgesia .Dexmedetomedine enhanced duration of local anaesthesia and analgesia in various nerve blocks without damage to nerves.

In this study we found that when Dexmedetomedine used as ajuvant with local anaesthesia adequate analgesia was maintained throughout surgery as well as in postoperative period for longer period.It maintained adequate sedation that made patient calm and cooperative.

There was no much haemodynamic instability like bradycardia, hypotension, desaturation perioperatively. Overall surgeons and patient satisfaction score was good.

CONCLUSION:

We can use Dexmedetomedine as a adjuvant to local anaesthesia infiltration for tympanoplasty with advantage of calm cooperative patient, adequate analgesia without perioperative haemodynamic instability and early postoperative recovery.

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Nil.

Conflict of interest:
There are no conflict of interests.

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