

Intranasal Dexmedetomidine Versus Oral Midazolam as Premedication in Anaesthesia in Children

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ABSTRACT

Only patients belonging to ASA I & II were chosen for the study. There was mild reduction in heart rate after administration of intranasal dexmedetomidine compared to oral midazolam. Sedation score of 3 and 4 were 73 % in Group A whereas 30 % in Group B (Oral Midazolam). At 20 mins, 60% were achieving score of 1 & 2 in Group A whereas 16% in Group B. At 30 mins, score 1 and 2 was about 80% in Group A and 43 % in Group B. Behaviour Scores of 1 and 2 at 10, 20 30 mins in Group A were 37%, 74%, 83% and 17%, 43%, 57% for Group B.

Key words: Dexmedetomidine, Midazolam, Premedication

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INTRODUCTION

Midazolam is a very common preanesthetic medication which is replaced by Dexmedetomidine an alpha-2 agonists in recent years. Many clinical trials have been performed to determine the efficacy of dexmedetomidine versus midazolam. But still no promising evidence are achieved to prove which agent is superior over other. Therefore, this study was conducted to compare efficacy & clinical effects of intranasal dexmedetomidine and oral midazolam as a preanaesthetic medication in children undergoing minor elective surgery [1-3].

METHODOLOGY

Children of age group of 2- to 12-year-old was taken for the study and categorized in to two groups Group A were administered with intranasal dexmedetomidine with a dosage of 1 µg/kg body weight, 45 minutes prior to surgery and Group B with Oral Midazol of 0.5mg /kg body

weight in 10 ml apple juice 30 minutes before surgery. After which the patient's blood pressure, heart rate, oxygen saturation was recorded at induction of anaesthesia. Sedation was assessed every 10 minutes with 6 point Modified observer's assessment of alertness / sedation scale. Behavioral changes and hemodynamic changes were also assessed.

RESULTS

The baseline values of heart rate, systolic blood pressure & oxygen saturation were similar and is comparable in both the groups (Tables 1 and 2). But while transferring to operation theatre, the heart rate of Group A (Intranasal dexmedetomidine) was significantly low on comparison with Group B (Oral midazolam). There was no statistically significant difference in systolic blood pressure and oxygen saturation between both groups on shifting to operation theatre.

Table 1: Comparison of heart rate, systolic blood pressure & oxygen saturation between Group A (intranasal dexmedetomidine) and Group B (Oral midazolam).

Groups	Group A (intranasal dexmedetomidine)			Group B (Oral Midazolam)		
	Statistical values	Baseline	OT	Statistical values	Baseline	OT
Heart rate	Mean	90.3	87.73	Mean	90.96	90.53
	S.D	3.58	5.41	S.D	2.95	2.8
	Standard error mean	0.654	0.988	Standard error mean	0.539	0.512

	P value	0.0 (statistically significant)		P value	0.562 (statistically insignificant)	
Systolic BP	Mean	94.8	94.2	Mean	93.86	93.2
	S.D	4.56	3.98	S.D	4.66	4.02
	Standard error mean	0.831	0.727	Standard error mean	0.852	0.734
	P value	0.589 (statistically insignificant)		P value	0.556 (statistically insignificant)	
Saturation	Mean	97.26	97.33	Mean	97.6	97.63
	S.D	1.68	1.49	S.D	1.49	1.32
	Standard error mean	0.307	0.273	Standard error mean	0.272	0.241
	P value	0.872 (statistically insignificant)		P value	0.928 (statistically insignificant)	

Table 2: Comparison of heart rate, systolic blood pressure & oxygen saturation between Group A (Intranasal dexmedetomidine) and Group B (Oral midazolam).

GROUP	Heart rate (beats/min)		Systolic Blood Pressure(mmHg)		Oxygen Saturation (%)	
	Baseline	At O.T	Baseline	At O.T	Baseline	At O.T
Group A (intranasal dexmedetomidine)	91±6	86±6	95±7	94±6	97±3	96±3
Group B (oral midazolam)	91±5	90±5	94±7	93±7	95±5	94±5

Group A showed a faster onset of sedation than group B at a time interval of 10, 20, 30 minutes (Figure 1) similarly in the behavioural score (Figure 2) and intravenous cannulation.

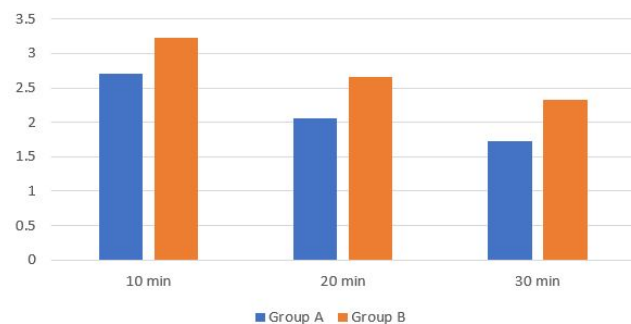


Figure 1: Sedation score at time intervals.

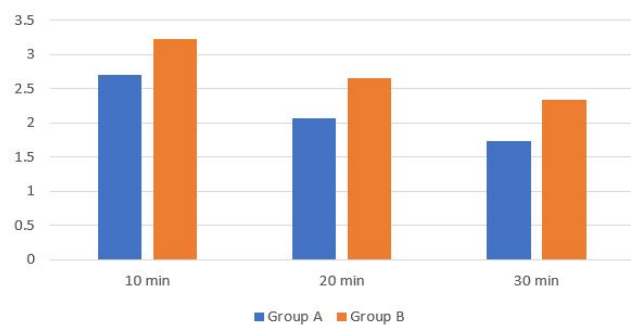


Figure 2: Behavioural score at time intervals.

DISCUSSION AND CONCLUSION

Midazolam is a versatile drug in general anaesthesia, but it is not ideal drug for premedication because of its adverse effects of restlessness, paradoxical reaction, negative postoperative behavioural changes. When comparing the effect of this drug with another similar agent like dexmedetomidine, the sedation scores at 10, 20 and 30 minutes are better with intranasal dexmedetomidine, which are statistically significant (p value is 0.0082, 0.0487 and 0.0351 respectively). The post-operative agitation was less with intranasal dexmedetomidine than with oral midazolam like study done by Schmidt et al. [4-9].

REFERENCES

1. Ball C, Westhorpe RN. The history of premedication. *Anaesth Intensive Care* 2011; 39:991.
2. Bacon DR, Francis Hoeffler McMechan. Creator of modern anaesthesiology. *Anesth Analg* 2012; 115:1393-400.
3. Mostafa GM, Khaled MM. Premedication with intranasal dexmedetomidine, midazolam and ketamine for children undergoing bone marrow biopsy and aspirate. *Egyptian J Anaesthesia* 2013; 29:131-135.
4. Schmidt AP, Valinetti EA, Bandeira D, et al. Effects of preanesthetic administration of midazolam, clonidine, or dexmedetomidine on postoperative pain and anxiety in children. *Paediatr Anaesth* 2007; 17:667-74.

5. Madej TH, Paasuke RT. Anaesthetic premedication: aims, assessment and methods. *Can J Anaesth* 1987; 34:259.
6. White PF. Pharmacologic and clinical aspects of preoperative medication. *Anesth Analg* 1986; 65:963e74.
7. Kamibayashi T, Maze M. Clinical uses of α_2 -adrenergic agonists. *Anesthesiol* 2000; 93:1345-1349.
8. Wagner DS, Brummett CM. Dexmedetomidine: As safe as safe can be. *Semin Anesth Perioper Med Pain* 2006; 25:77-83.
9. Shagufta Naaz, Erum Ozair. Dexmedetomidine in current anaesthesia practice- A review. *J Clin Diagnost Res* 2014; 8:GE01- GE04.