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The different timing of oral clonidine premedication effect on analgesic requirement in spine surgery

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Abstract

Background: Premedication is the administration of medication before anaesthesia. It is used to prepare the patient for anaesthesia and to provideoptimal conditions for surgery.

Methods: The study of oral premedication dose of clonidine in spinal surgery at different time was conducted on sixty ASA grade-1 patients of either sex between 20 to 60 years of age undergoing elective spine surgery. Thisstudy was performed after approval from ethics committee of the institute. Informed consent was obtained from each patient.

Results: In group- 1, 4 patient required no analgesia (13.3%), 10 patients required 1 dose of analgesic (33.3%), 13 patient required 2 dose of analgesic (43.3%) and 3 patients required 3 dose of analgesic (10%). In group-2, 6 patient required no analgesia (20%), 12 patient required only 1 dose of analgesic (40%), 2 dose of analgesic required in10 patient (33.3%) and 3 dose of analgesic required in 2 patient (6.7%).

Conclusion: We concluded that the tablet clonidine premedication to be given 3.5 hour prior to intubation if intubation response to be attenuated to the maximum. But a further study with ASA-II and ASA-III with greater number of patients in one group is advocate for seeing significant response.

Keywords: Clonidine, Analgesia, Spine

Introduction

The management of anaesthesia begins with preoperative psychological preparation of the patient and administration of drug or drugs selected to elicit specific pharmacological response, and no single drug is known to produce all of these effects.

The choice of premedication depends upon various factors like type of surgery, age of the patient, choice of the anaesthesia and as more and more patients are going in for the day care surgery, the use of premedication is declining as the patients are reporting late on the day of surgery. It was observed that only 37.2%[5] of the patients posted for surgery get normal premedication, in 9.7% no premedication was given and in rest of the patients the premedication time was

not appropriate. Premedication aspects of rest of the patients were overlooked or were not properly followed.[1-2]

Materials and Method

The study of oral premedication dose of clonidine in spinal surgery at different time was conducted on sixty ASA grade-1 patients of either sex between 20 to 60 years of age undergoing elective spine surgery. This study was performed after approval from ethics committee of the institute. Informed consent was obtained from each patient.

Exclusion Criteria

1. Age<20 and >60
2. Patient refusal
3. ASA-2. ASA-3 and ASA-4
4. Patient with B.P.>140/90and<110/70.H.R<60
5. Patient on any medication which altered H.R. and B.P.
6. Difficult intubation and emergency surgery
7. Any medication which interact with clonidine
8. Cervical spine surgery
9. Coronary artery and cerebrovascular disease
10. Neurological disorder and diabetes mellitus

Study protocol were explained to all the patients during pre- anesthetic evaluation and after taking written informed consent they were included in the study and were allotted the group according to the random allocation software.

Method

Patients were randomized into two groups of 30 each with randomization software. In group1.patient were received tab clonidine 200µg (2 tablet of Arkamin 100µg each) 90 minute beforesurgery.

In Group2 patients were received tablet clonidine 200µg 3.5 hour before surgery. (Tablet Arkamin of Urichem Laboratories Ltd.is avaible as 100 µg was used.)

Patients of both the group were advised to take tablet midazolam 7.5mg before bed time and was nil per orally after 10pm.

Next day in the morning group-1 patient were given tab clonidine 200µg 90 minute before surgery and group-2 patient were given tab clonidine 200µg 3.5 hour before surgery. Vitals were recorded in both thegroups before premedicating. On arrival in the operation theatre H.R. and B.P was noted down. Sedation score was done just before and afterpremedication. The degree of sedation was recorded (as per American society of anesthesiology sedation score)

0. Point- patient awake &talkative
1. Point- patient awake but uncommunicative
2. Point-patient drowsy, quiet and easily arousable
3. Point –patient asleep

A peripheral intravenous line was secured with 18G cannula. Monitor was attached and patient base line measurement of HR. SBP. DBP & MAP was obtained non-invasively and ECG was displayed on themonitor. Saturation was monitored throughout the procedure. Injecton fentanyl 2ug/kg i.v and. Injection emset (ondansetron) 4mg 1/v was given and after pre-oxygenation with 100% oxygen for 3 minute, patient was induced with injection propofol 40 mg stat and 10 mg every 3 second, till eye lash reflex was gone. Induction dose of propofol was noted. After ventilating the patient, injection rocuronium 0.6mg/kg i.v. was given.

Intubation was done gently after 3minute with endotracheal tube 7.5 ID in female and 8.0 ID in the male. Haemodynamics response to intubation was noted. Patient was maintained on oxygen, nitrous Oxide

(33%-66%) & isoflurane (0-1%). injection diclofenac 75 mg i/v was given slowly.

Results

There was significant reduction in requirement of total analgesic dose (Inj.Diclofenac Sodium) within 24 hour in both the group. In group- 1, 4 patient required no analgesia (13.3%), 10 patients required 1 dose of analgesic (33.3%), 13 patient required 2 dose of analgesic (43.3%) and 3 patients required 3 dose of analgesic (10%).

In group-2, 6 patient required no analgesia (20%), 12 patient required only 1 dose of analgesic (40%), 2 dose of analgesic required in10 patient (33.3%) and 3 dose of analgesic required in 2 patient (6.7%).

It is routine in our medical college that every post spine surgery patient, we give injection diclofenac sodium every 8 hourly and sometime even more analgesic are required because the patient have severe pain. So we assumed that 30 patient in the post-operative period in group-3 were given 3 dose of analgesic injection diclofenac sodium.

By applying the Kruskal Wallis ANOVA test, total analgesic requirement in our study groups was less than group-3 and is highly significant (p-≤0.001).

Although there was reduction in requirement of total analgesic dose within 24 hour, it was found that the difference in both groups was statistically insignificant (P-≥0.05).

Table 1: Comparison of total analgesic requirement in 24 hour postoperatively in group-1 and group-2

		Group		Total	p-value
		1	2		
Total Analgesic Requirement	Count	4	6	10	.300
	% within TotalAnalgesic Requirement	40.0%	60.0%	100.0%	
	% within group	13.3%	20.0%	16.7%	
	Count	10	12	22	
	% within TotalAnalgesic Requirement	45.5%	54.5%	100.0%	
	% within group	33.3%	40.0%	36.7%	
	Count	13	10	23	
	% within TotalAnalgesic Requirement	56.5%	43.5%	100.0%	
	% within group	43.3%	33.3%	38.3%	
	Count	3	2	5	
	% within TotalAnalgesic Requirement	60.0%	40.0%	100.0%	
	% within group	10.0%	6.7%	8.3%	
Total	Count	30	30	60	
	% within Total Analgesic Requirement	50.0%	50.0%	100.0%	
	% within group	100.0%	100.0%	100.0%	

Discussion

In our study In group-1,4 patient required no analgesia(13.3%),10 patients required 1 dose of analgesic (33.3%),13 patient required 2 dose of analgesic (43.3%) and 3 patients required 3 dose of analgesic(10%).

In group-2,6 patient required no analgesia (20%),12 patient required only 1 dose of analgesic (40%),2 dose of analgesic required in10patient (33.3%) and 3dose of analgesic required in 2 patient (6.7%).In our study group maximum patient either required no analgesic or required one or two dose of analgesic. There was significant reduction in requirement of analgesia in our group as compare to the patient in group- 3 patient that do not premedicated with tab,clonidine.

TAR was significantly prolonged in the clonidine group in comparison with the placebo group (185 ± 34.4 vs 100.40 ± 24.3 min). There were more patients in the clonidine group that required analgesic 6- 8 h postoperatively than in the control group who had already taken their first dose of analgesic. Similarly, significantly fewer patients required only one dose of diclofenac sodium during the first 24 h postoperatively in clonidine group (92% vs 60 %, $P < 0.05$). Also, more patients in placebo group needed a second dose of diclofenac Sodium (40% vs 8%, $P < 0.05$) to alleviate post-operative pain.

Dr. Anila D malde et al. observed in their study of oral clonidine in children efficacy as premedicant and post-op analgesic as compare to diazepam. In their study in three groups, they premedicated the children 70 to 90 minute before the surgery by 2µg/kg of tab. clonidine in one group 4µg/kg in second group and tab. diazepam in third group. They observed in their group that in group-1 and in group-2, 5 children (20%) required rescue analgesia at 0-6 hour and 6-24 hour there was 0 requirement of rescue analgesia. In diazepam group 24(96%) children required rescue analgesia at 0-6 hour and 13(52%) children required rescue analgesia at 6-24 hour. Their study showed similar result in post- op analgesia.

Conclusion

We concluded that the tablet clonidine premedication to be given 3.5 hour prior to intubation if intubation response to be attenuated to the maximum. But a further study with ASA-II and ASA-III with greater number of patients in one group is advocate for seeing significant response.

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