

A Comparative Study of Efficacy of Conscious Sedation using Midazolam Plus Fentanyl Versus Midazolam Plus Propofol during Regional Anaesthesia

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Abstract

Introduction: Regional anesthesia is becoming an increasingly important aspect of anesthesia practice. *Aims and Objectives:* To study efficacy of conscious sedation using Midazolam plus Fentanyl versus Midazolam plus Propofol during regional anaesthesia. *Methodology:* We conducted a comparative study of conscious sedation using midazolam with fentanyl in group-I vs. midazolam with propofol in group-II. In the department of anesthesia at Dr.V.M. Govt. Medical college in the period between January 2005 to December 2005. 60 patients of ASA Grade I, II, & III, were randomly divided in two groups, 30 in each group, of between 15 to 60 years of either sex undergoing any surgery under regional anesthesia. The statistical analysis was done by unpaired t-test and Chi-square test calculated by SPSS software version 19. *Result:* Recovery at the end of surgery. In Group II (Midazolam+propofol) 83% of patients were calm and quiet while 40% Group I (Midazolam + Fentanyl). In group II, 7% of patients were asleep, arousable and in Group I, 33% of patients were asleep, arousable. Recovery at end of surgery is highly statistically significant, in group II. There was significantly less number of recall of events in Group II (Midazolam +propofol) Preoperative and intraoperative events, than Group I (Midazolam+Fentanyl). *Conclusion:* It can be concluded from our study that Midazolam plus Propofol was found superior to Midazolam plus Fentanyl in terms of smooth and early recovery at the end of surgery and less number of recall of events.

Keywords: Conscious Sedation; Midazolam Plus Fentanyl; Midazolam Plus Propofol.

Introduction

Regional anesthesia is becoming an increasingly important aspect of anesthesia practice. Its advantages include avoidance of certain risks with general anesthesia such as pulmonary aspiration and airway obstructions, laryngospasm. Avoidance of operation theater pollution, provision of good postoperative analgesia. Benefits in certain pre-existing pulmonary embolism postoperatively [1,2,3,4,5].

Surgery and anesthesia are events that pose considerable stress on the patient. Except a few, patients like to remain sedated during the surgical

procedure. The state of wakefulness can produce anxiety and reduce patient satisfaction and cooperation.

Conscious sedation lies between wakefulness and general anesthesia wherein patients are comfortably asleep but readily arousable to verbal commands and can independently maintain their airway [6].

Various methods have been described to provide these range from intravenous or inhalation sedation to full general anesthesia. To avoid the disadvantages of the latter, light sedation with an intravenous agent is obviously the method of choice. However to preserve the benefit of the local technique, recovery must be rapid and clearheaded with freedom from minor postoperative sequelae [7].

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Received on 19.09.2017, Accepted on 13.10.2017

In 1966 shane described “intravenous amnesia” technique involving small incremental doses of barbiturates, opioids, anticholinergics and ataractics. The term “conscious sedation” implies the use of intravenous anesthetics and analgesics to supplement local or regional anesthesia.

According to American dental association conscious sedation is defined as use of medication to minimally depress level of consciousness in a patient while allowing the patients to continually and independently maintain patent airway and responds appropriately to verbal commands [8].

Ability to maintain patent airway independently is an important distinguishing feature of conscious sedation from deep sedation [9].

Advantages of conscious sedation:-Adequate sedation with minimal risk, Relief of anxiety, Amnesia, Relief of pain and other noxious stimuli.

Benzodiazepines are widely used to produce sedation and amnesia in the operative room. Midazolam offers several advantages over other available benzodiazepines. It cases early recovery less postoperative sedation, less veno-irritation on injection and has excellent amnestic action.

Midazolam is used for conscious sedation for short diagnostic or endoscopic and dental procedure, adjunct to local or regional anesthesia [10]. Propofol is a sedative hypnotic drug, which is becoming popular for sedation during our patients procedures performed under local anesthesia. Its high clearance and favorable recovery profile offers advantages over other intravenous sedative and analgesic drugs. Sedation with propofol can be adjusted with manual intermittent bolus injections techniques [11,12]. *Fentanyl*: Fentanyl is a potent synthetic opiate agonist, estimated to be 25 fold to 100 fold more potent than morphine. It is highly lipid soluble and enters the central nervous system swiftly. Leading to rapid onset of action.Fentanyl provides relief of moderate to severe pain and has become the narcotic drug of choice for a wide

variety of painful procedures. It has relatively short duration of action. These qualities make it ideal for the expeditious completion of painful procedures in the emergency department setting [13,14]. Patient’s comfort is maintained with combination of drug [15].

In our institute Dr.V.M. Govt. Medical college we have proposed to use conscious sedation with Midazolam and Fentanyl vs. Midazolam and propofol. In this prospective randomized clinical study, was examined whether conscious sedation with propofol is better than fentanyl.

Methodology

We conducted a comparative study of conscious sedation using midazolam with fentanyl in group I vs. midazolam with propofol in group II. In the department of anesthesia at Dr.V.M. Govt. Medical college In the period between January 2005 to December 2005. 60 patients of ASA Grade I, II, & III, were randomly divided in two groups, 30 in each group, of between 15 to 60 years of either sex undergoing any surgery under regional anesthesia (spinal, epidural anesthesia or peripheral nerve blocks, Routine of emergency surgery were included into study while the patients with history of allergic reaction to the study medication, Chronic opioid or sedative drug use, Obesity (>130% for ideal body weight), Clinically significant cardiac, pulmonary, hepatic or renal dysfunction were excluded from study. The statistical analysis was done by unpaired t-test and Chi-square test calculated by SPSS software version 19.

Result

From below table recovery at the end of surgery. In Group II (Midazolam+propofol) 83% of patient

Table 1: Demographic data

Characteristics	Group I (Fentanyl)	Group II (propofol)	Remarks
Age years			
15-25	8	3	
26-35	5	8	
36-45	10	12	
46-55	6	3	
56-65	1	4	
Mean±Std.Devi.	35.67±11.74	39±11.36	
Sex			
Male	15	16	NS
Female	15	14	

The socio demographic characters of both the groups were comparable to each other

Table 2: Recovery at the end of surgery

Characteristics	Group I (n=30)		Group II (n=30)	
	No	Percentage	No	Percentage
Calm & quiet	12	40%	25	83%
Drowsy	8	27%	3	10%
Asleep, Arousable	10	33%	2	7%
Total	30	-	30	-

($\chi^2=12.17$, $P < 0.05$ statistically significant)

Table 3: Recall of events

Characteristics	Group I (n=30) Midazolam+Patients				Group II (n=30) Midazolam+Propofol			
	yes	%	No.	%	Yes	%	No.	%
Preoperative event	10	33%	20	67%	3	10%	27	90%
Intraoperative Event	2	17%	25	83%	1	1%	29	99%
χ^2	2.22				0.2678			

were calm and quiet while 40% Group I (Midazolam + Fentanyl). In group II, 7% of patients were asleep, arousable and in Group I, 33% of patients were asleep, arousable. Recovery and in end of surgery is highly statistically significant, in group II.

From Above table there was significantly less number of recall of events in Group II (Midazolam +propofol) Preoperative and intraoperative events, than Group I (Midazolam+Fentanyl).

Discussion

Eighty three percent of the patients from group II (Propofol+Midazolam) were awake but calm and quite and only 40% of the patients from group I were awake. 27% of patients from group I (fentanyl+midazolam) were drowsy and 33% were asleep arousable. This indicates patients remains more sedated in fentanylmidazolam group. Thus recovery score is highly significant in -group II (Midazolam+propofol).

There was significantly less number of recall of events in Group II (Midazolam +propofol) Preoperative and intraoperative events, than Group I (Midazolam+Fentanyl) this was similar to Tejindarsing et al [15] and N-Mackenzie et al [7].

Conclusion

It can be concluded from our study that Midazolam plus Propofol was found superior to Midazolam plus Fentanyl in terms of smooth and early recovery at the end of surgery and less number of recall of events.

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Journal title: Indian Journal of Anesthesia and Analgesia
ISSN: 2455-6238
GICID: n/d
Country / Language: IN / EN
Publisher: A. Lal

Citation:	N/A
MNISW 2016:	N/D
ICV 2016:	75.65
ICV 2015:	68.67