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RESEARCH ARTICLE

COMPARISON OF DIFERENT DOSES OF KETAMINE FOR MINOR OBSTETRIC AND GYNAECOLOGIC PROCEDURES

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ABSTRACT

Ketamine in two different doses (1 mg/kg and 2 mg/kg IV) after diazepam 0.2 mg/kg IV was administrated to 100 females for minor obstetric and gynecologic procedures after premedication with either atropine 0.01 mg/kg i.m. or with atropine 0.01 mg/kg and promethazine 0.5 mg/kg i.m., anaesthesia was satisfactory and mild but clinically insignificant respiratory depression was observed in all the four groups. Addition of promethazine to the premedication significantly reduced the postoperative nausea & vomiting as well the emergence delirium ($P < 0.05$).

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INTRODUCTION

Ketamine hydrochloride, a phencyclidine derivative, introduced into clinical anaesthetic practice by Domino, Chodoff and Corssen in 1965 has proven to be an excellent analgesic agent for short surgical procedures (Shilpashri *et al.,* 2013). Ketamine is an intravenous drug with special properties that make it the only agent that presently serves as an anesthetic, sedative, amnesic and analgesic. Although it is sometimes forgotten, Ketamine is still considered a valuable drug (Gao *et al.,* 2016). Ketamine is a good anaesthetic agent for short surgical procedures. But it has its shortcomings too, Ketamine has been shown to increase the incidence of postoperative nausea and vomiting (PONV), while also increasing the severity of nausea (Song *et al.,* 2013). One of ketamine's positive features is that it has a minimal effect on the central respiratory drive if given slowly, although rapid IV injection can cause transient apnea. Ketamine increases salivary secretions, increasing the incidences of laryngospasm due to partial airway obstruction and can be resolved by simple airway maneuvers. Secretions can be anticipated; therefore, it is recommended to co-administer a small dose of atropine (0.01 mg/kg) (Kye *et al.,* 2012). When used in sub-anesthetic doses, ketamine provokes imaginative, dissociative states and psychotic symptoms resembling schizophrenia due to its NMDA-antagonistic action, as well as severely impairing semantic and episodic memory. Used as an anesthetic, it can cause various emergent phenomena that have been described as a floating sensation, vivid pleasant dreams, nightmares, hallucinations and delirium. These phenomena are more common in patients >16 years of age, females, shorter operative procedures, and those receiving large doses, particularly when administered quickly. Due to ketamine's unique properties and versatility although it has gained popularity in prehospital and emergency medicine as well as being used extensively by anaesthetists and anaesthetic assistants throughout the world but inspite of these potential advantages of ketamine, it has not proved universally popular, due to its potentially troublesome ''emergence'' phenomena, its potential as a drug of abuse and the introduction of other sedative and analgesic drugs (Gales and Maxwell, 2018). The present study was conducted to compare the different doses of Ketamine for minor Obstetric and gynaecologic procedures.

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Table 1. Distribution of Cases

Groups	A	B	C	D
Examination under GA	3	2	4	2
D & C	9	12	8	10
S & E	11	10	9	10
MRP	2	1	2	2
Bartholin's Cyst	0	0	2	1
Total	25	25	25	25

Table 2. Four main groups of patients with reference to various anaesthetic agents

Group (n)	IM premedication	IV anaesthesia
A (25)	Atropine 0.01 mg/kg	Diazepam 0.2 mg/kg Ketamine 1 mg/kg
B (25)	Atropine 0.01 mg/kg Promethazine 0.5 mg/kg	Diazepam 0.2 mg/kg Ketamine 1 mg/kg
C (25)	Atropine 0.01 mg/kg	Diazepam 0.2 mg/kg Ketamine 2 mg/kg
D (25)	Atropine 0.01 mg/kg Promethazine 0.5 mg/kg	Diazepam 0.2 mg/kg Ketamine 2 mg/kg

Table 3. Results

Groups	A	B	C	D
Induction time (Seconds)	42 ± 7 SE	43 ± 6 SE	39 ± 6 SE	38 ± SE
Operation time (min)	13.14 ± 3.2	12.96 ± 3.6	13.11 ± 4.1	12.98 ± 3.1
Time of ambulation (min)	75 ± 23	73 ± 27	78 ± 30	80 ± 25
Change in H.R (beats/min)	13.5 ± 5.1	12.6 ± 5.2	13.6 ± 6.1	13.2 ± 5.9
Change in Systolic BP (mm Hg)	20.57 ± 7.2	18.20 ± 6.7	21.86 ± 6.2	19.0 ± 7.1
Change in Diastolic BP	9.0 ± 5.8	8.5 ± 7.4	9.3 ± 8.1	9.0 ± 7.5
Change in R.R	5.5 ± 3.1	5.6 ± 2.4	5.3 ±2.4	5.3 ± 2.5
Resp. Depression requiring Assisted ventilation (no. of cases)	0	0	0	0
Need of supplement (no. of cases)	0	0	0	0
Emergence Delirium	7 (28%)	3 (12%)	8 (32%)	4 (16%)
Dreaming	3 (12%)	0	3 (12%)	0
Post operative nausea & vomiting	9 (36%)	3 (12%)	8 (32%)	3 (12%)
Awareness	0	0	0	0

MATERIALS AND METHODS

The present study was conducted on 100 healthy female patients of ASA grade I presenting for short obstetric & gynecological procedures, ranging between 26 to 40 years of age (Table 1) at GMC, Jammu. Informed consent was obtained from each patient. The patients were randomly divided into four groups (Table I). All patients received atropine 0.01 mg/kg i.m. 45 minutes before induction. Patients in groups B and D also received promethazine 0.5 mg/kg along with atropine. For induction of anaesthesia, all the patients received diazepam 0.2 mg/kg i.v. After 5 minutes, groups A and B received ketamine 1 mg/kg i.v. slowly while groups C and D received ketamine 2 mg/kg i.v. slowly (Table II). Operation started within 30-50 seconds after the injection. Duration for the procedure was 10-15 minutes. Postoperatively, no effort was made to awaken the patients and they were allowed to recover in a quiet room.

The quality of anaesthesia was judged as

- **Good:** When patient remained calm and unresponsive throughout the operation.
- **Fair:** When phonation and bizarre movements occurred but did not interfere with the operation.
- **Poor:** Phonation and bizarre movements interfering with the surgical procedure.

The patient's vitals were recorded before induction, during induction, in perioperative and postoperative periods.

All undesirable side effects were noted. Prior to discharge and subsequently on the next day, the patients were interviewed to assess the quality of anaesthesia for any awareness or hallucinations during operation.

RESULTS

The patients were matched for age and weight in all the groups ($p > 0.05$). Adequate anaesthesia was produced in all the groups within 30 to 50 seconds. There was no statistical difference between the groups ($P > 0.05$). The results have been presented in Table III.

DISCUSSION

The induction time was 30 to 50 seconds which is consistent with the observations of other workers (Kurdi *et al.,* 2014). As the operation time was only 10-15 min. no repeat doses were required. The recovery time for ambulation ranged between 40 to 140 min. Mild respiratory depression was observed in all the four groups which was clinically insignificant. No patient required assisted ventilation. Emergence delirium was seen in 28% and 32% cases in groups A and C while it was 12% and 16% in groups B and D (promethazine groups). Dreaming was 12% in groups A and C while none of the patients had it in the promethazine groups (B & D). Nausea and vomiting was observed in 36% and 32% in A & C groups while only 12% had nausea and vomiting in the promethazine groups (B & D) each. Results of the promethazine groups show a statistically ($p < 0.05$) as well as clinically significant improvement over

the other groups. Diazepam and ketamine combination produced good or fair anaesthesia in all the cases also reported by Quttainah *et al*., (2014). The hemodynamic and respiratory changes were within acceptable limits. Addition of promethazine to premedication further improved the quality of anaesthesia by reducing the incidence of emergency delirium, dreaming and nausea and vomiting. Therefore, atropine and promethazine premedication i.m., followed by diazepam 0.2 mg/kg and ketamine 1 mg/kg i.v. appears to be a suitable technique for minor obstetric & gynecologic procedures.

Conclusion

Atropine and promethazine premedication i.m., followed by diazepam 0.2 mg/kg and ketamine 1 mg/kg i.v. appears to be a suitable technique for minor obstetric & gynecologic procedures.

Conflict of interest: None.

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Contribution

RS and SDG dosage of anaesthesia, IB Surgical procedures, KR writing the overall manuscript

REFERENCES

Gales A and Maxwell S. Ketamine: Recent Evidence and Current Uses. ATOTW tutorials www.wfsahq.org/ resources/anaesthesia-tutorial-of-the-week

Gao M, Rejaei D , Liu H. Ketamine use in current clinical practice. *Acta Pharmacologica Sinica* (2016) 37: 865–872

Kurdi MS, Theerth KA, and Deva RS. Ketamine: Current applications in anesthesia, pain, and critical care. *Anesth Essays Res*. 2014 Sep-Dec; 8(3): 283–290

Kye YC, Rhee JE, Kim K, Kim T, Jo YH, Jeong JH, *et al*. Clinical effects of adjunctive atropine during ketamine sedation in pediatric emergency patients. *Am J Emerg Med* 2012; 30: 1981–5.

Quttainah A, Carlsen L, Voice S and Taylor J. Ketamine-diazepam protocol for intravenous sedation: The cosmetic surgery hospital experience. Can J Plast Surg. 2004; 12(3).

Shilpashri AM, Shivakumar KP, Sajjan N. ketamine as a sole anaesthetic agent in short surgical procedures – a clinical study. *Journal of Evolution of Medical and Dental Sciences*. 2013; 2(6).

Song JW, Shim JK, Song Y, Yang SY, Park SJ, Kwak YL. Effect of ketamine as an adjunct to intravenous atientcontrolled analgesia, in patients at high risk of postoperative nausea and vomiting undergoing lumbar spinal surgery. *Br J Anaesth* 2013; 111: 630–5

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