Department of Anesthesia
Intensive care and pain mangement

Comparative study between Gabapentin, Midazolam and Granisterone in management of post operative nausea and vomiting in C.S

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List of Abbreviations

Abbr.		Full-term
APAIS	**:**	Amsterdam Preoperative Anxiety and Information Scale
ASA	**:**	American society of anaesthesiologists
CS		Caesrean section
BZD	**:**	Benzodiazepine
Ca^{+2}	**:**	Calcium
CINV	**:**	Chemotherapy-induced nausea and vomiting
CNS	**:**	Central nervous system
CSF	**:**	Cerebrospinal fluid
CTZ	**:**	Chemoreceptor trigger zone
CYP450	**:**	Cytochrome P450
ECG	**:**	Electrocardiogram
FDA	**:**	Food and Drug Administration
GABA	**:**	Gamma-aminobutyric acid
GERD	**:**	Gastro-esophageal reflux
GI	**:**	Gastrointestinal
GIRK	**:**	G-protein-coupled inwardly rectifying potassium
H	**:**	Histamine
IASP	**:**	International Association for the Study of pain
ICU	**:**	Intensive care units
IV	**:**	Intravenous
M	**:**	Muscarine
N2O	**:**	Nitrous oxide
Na	**:**	sodium

NACS	**:**	Neonatal Neurologic and Adaptive Capacity Score
NICU	**:**	Neonatal intensive care unit
NK-1	**:**	Neurokinin
NMDA	**:**	N-methyl-D-aspartate
NRS	**:**	Numerical rating scale
NSAIDs	**:**	Non-steroidal anti-inflammatory drugs
NSCSA	**:**	National Sentinal Caesarean Section Audit
P-6	**:**	pericardium-6
PACU	**:**	Post anaesthesia care unit
PDNV	**:**	Post-discharge nausea and vomiting
PON	**:**	Postoperative nausea
PONV	**:**	Postoperative nausea and vomiting
POV	**:**	Postoperative vomiting
SNRIs	**:**	serotonin and nor-adrenaline reuptake inhibitors
SSRIs	**:**	selective serotonin reuptake inhibitors
$t_{½}$	**:**	Terminal half life
TDS	**:**	Transdermal scopolamine
TIVA	**:**	Total intravenous anaesthesia
5-HT	**:**	5-hydroxytryptamine
5-HT$_3$	**:**	5-HT subtype 3 receptor

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Abstract

Background: Caesarean section is one of the most prevalent surgical procedures among women. Pain, nausea and vomiting are the most common adverse effects of surgery. In the recent past, Gabapentin has been used to reduce pre-operative anxiety, acute postoperative pain, postoperative opioid requirements, postoperative nausea and vomiting (PONV) and delirium. Numerous studies have reported that Midazolam effectively prevents PONV. The use of midazolam not only may reduce the incidence of PONV but may also provide an anxiolytic and amnestic effect.

Aim of the Work: to compare between Gabapentin, Midazolam and Granisetrone safety and efficacy in managing PONV.

Patients and Methods: This study started with 90 Pregnant females ASA II selected to compare between Gabapentin, Midazolam and Granisetrone safety and efficacy in managing PONV for a parturient undergoing a caesarean section under spinal anesthesia, during the period of the study from 1st January 2018 to 31st December 2018 at Faculty of Medicine, Ain Shams University Hospitals, Gynecology and Obstetrics Hospital. patients were randomly divided into 3 equal groups; Gc: control group received Granisetrone 40 ug/kg intravenous immediately before induction of anaesthesia and Group Gm: Midazolam group received Midazolam 20ug/kg intravenous immediately before induction of anaesthesia and Group Gg: Gabapentin group received a capsule of 600 mg orally one hour before induction of anaesthesia and a syringe of isotonic saline intravenously immediately before induction of anaesthesia to ensure the blindness of the anaesthetist.

Results: Gabapentin and midazolam offered management of PONV for parturients just like the control drug (Granisetron) with no statistically significance between the three groups (p-value >0.2). Regarding pain Gabapentin offered analgesia all through the postoperative 8 hours by significant difference (p-value<0.02) among the three groups compared to the midazolam which was a statistically significant at only 4 hours postoperatively (p-value=0.01) but the two drugs gave the same results in decreasing the analgesic requirements all through the postoperative period as the total number of rescue analgesic doses was statistically significant between the two groups and the control group (p-value=0.0001). Regarding amnesia Midazolam was distinct with high significant difference (p-value=0.0001) in offering amnesia compared to the two other groups which offered no amnestic effects. In contrast there was no significant difference among the three groups between sedation using ramsay sedation score (p-value>0.1) and neonatal wellbeing using Apgar score (p-value>0.3).
Conclusion: Gabapentin (600mg) and Midazolam (20 ug/kg) are safe and efficient in decreasing (PONV), pain scores and analgesic requirements without any sedative effects on nthe parturient or negative effects on neonatal well-being.

Key words: Gabapentin, Midazolam, Granisterone, postoperative nausea, vomiting, C.S.