International Journal of Medicine Research
www.medicinesjournal.com
ISSN: 2455-7404
Received: 28-10-2022, Accepted: 14-11-2022, Published: 30-11-2022
Volume 7, Issue 2, 2022, Page No. 56-59

Post-contusion vomiting control comparison study between three drug

Dr. Hazim Moojid Abbas[1], Ali Abulridha Abbas[2]
[1] Department of Surgery (Neurosurgeon), Medicine Collage, Karbala University, Karbala, Iraq
[2] Department of General Surgery, Medicine Collage, Karbala University, Karbala, Iraq

Abstract
Our current research includes a comparative study between three types of drugs whose abuse causes vomiting, these drugs are (prochlorperazine, metoclopramide, and ondansetron). The effectiveness evaluation of these drugs observed in patients with postcontusion vomiting, this study performed in Imam Al-Hussein medical city and Imam Al-Huja hospital through the period between June of 2015 and March of 2022. It has been shown through our comparative study that the cases of vomiting that occurred are due to the harmful stimulation of the vomiting center with direct or indirect irritation of the gastrointestinal tract, the vestibular system, the chemo-receptor trigger position, and higher centers in cortex and thalamus. Each type of these drugs had a negative effect because of its interaction with the other drug, leading to the some processes characterized by enhanced the releasing of acetylcholine, causes the increasing of lower esophageal sphincter LES and gastric tone, accelerates the gastric emptying, and transit via the gut.

Keywords: post-contusion, vomiting, drug

Introduction
Vomiting is the forcible ejection of all the contentments of the stomach via the oral cavity, and through the nose some times, and it may be preceded by sweating, and at that time it is called nausea, which is accompanied by a decreasing of blood pressure with increasing of salivary secretion. Nausea and vomiting are the generality common complications after haemorrhagic contusions which excesses the hazard of intracranial pressure height [1, 2]. So, the goul of our study is for comparing of the antiemetic effective of metoclopramide, ondansetron and prochlorpromazine in the treatment of post-contusion vomit and nausea. First, let's show some drugs such as; phenothiazines: a group of drugs acts as antiemetic agents, prochlorperazine one type of phenothiazines, which acts as a blocker receptors of dopamine. Prochlorperazine act against moderately or low emetogene chemo-therapeutic factors like (doxorubicin, and fluorouracil). In spite of the fact that increasing the dose improves antiemetic activity, there is limiting of side effects dose. Prochlorperazine, used as antipsychotic also. Metoclopramide regarded as substituting benzamide, which has anti-emetic effective. Metoclopramides (met. oh-kloe PRAH mide) has effectiveness when used with large dosage against the emetogenic-cisplatin, prevent emesis of patients about (30 % - 40 %), and reduced the emesis in the most of patient's number. Metoclopramide consummates this by the dopamine inhibited in (C.T.Z). The side-effects of anti-dopaminergic, includes symptoms extrapyramide, limited by high-dose used. previously, metoclopramide used as a pro-kinetic medicine to treat the (G.E.R.D). However, because the reverse effectiveness profile, and the presence of many efficient medicines, like (P.P.Is), it should be attached to patients with documented gastro-paresis. Ondansetron drug has selectively action by blocking of 5HT3- receptors in the peripheral location (visceral vagal afferent fibers), and in the brain (CTZ) [3]. This type of agents is an important for the treating emesis that related with chemotherapy, greatly because of their biger duration of work, and ascendant efficacy. These drugs can be taken as a singular dose prior to chemotherapy (intravenously or orally), and are functional against all classes of emeto-genic therapy. Ondansetron and granisetron act for prevented the emesis in (50 % - 60 %) of cisplatin treating of patients. These factors are beneficial in the administration of post-operative nausea, and vomit. (5HT3) antagonists are overall metabolize through the liver. However, jest ondansetron demands dosage adjustment in hepatic-inability.

Aim of Study
Effectiveness evaluation of prochlorperazine drug by comparison with (metoclopramide, and ondansetron) drug in patients with postcontusion vomiting.

Patient and Method
Protractive study performed between (June of 2015 and March of 2022), in Imam Al-Hussein medical city and Imam Al-Huja hospital.

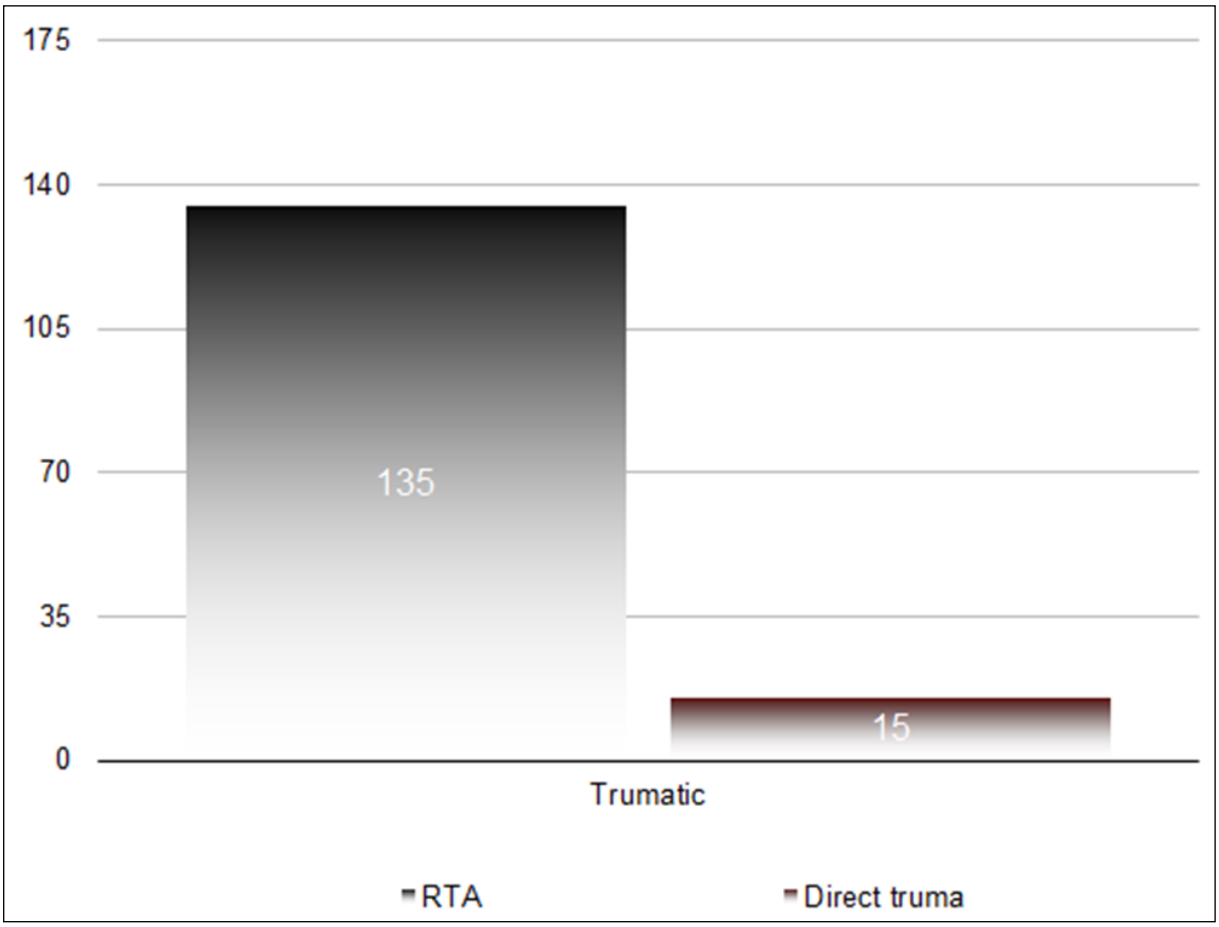

Fig 1: for showing the percentage of 150-trumatic patients out of the (250 cases)

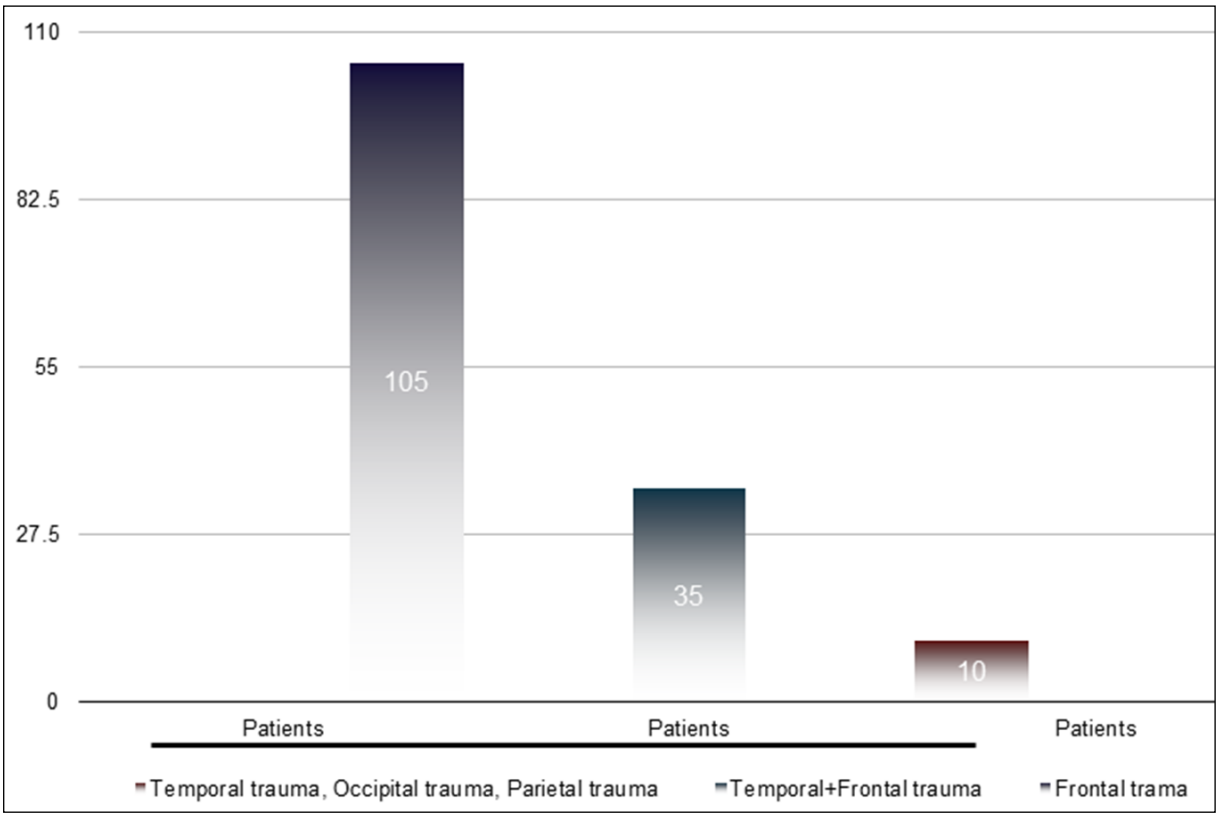

Fig 2: for showing the differences in cases of haemorrhagic contusion

Results

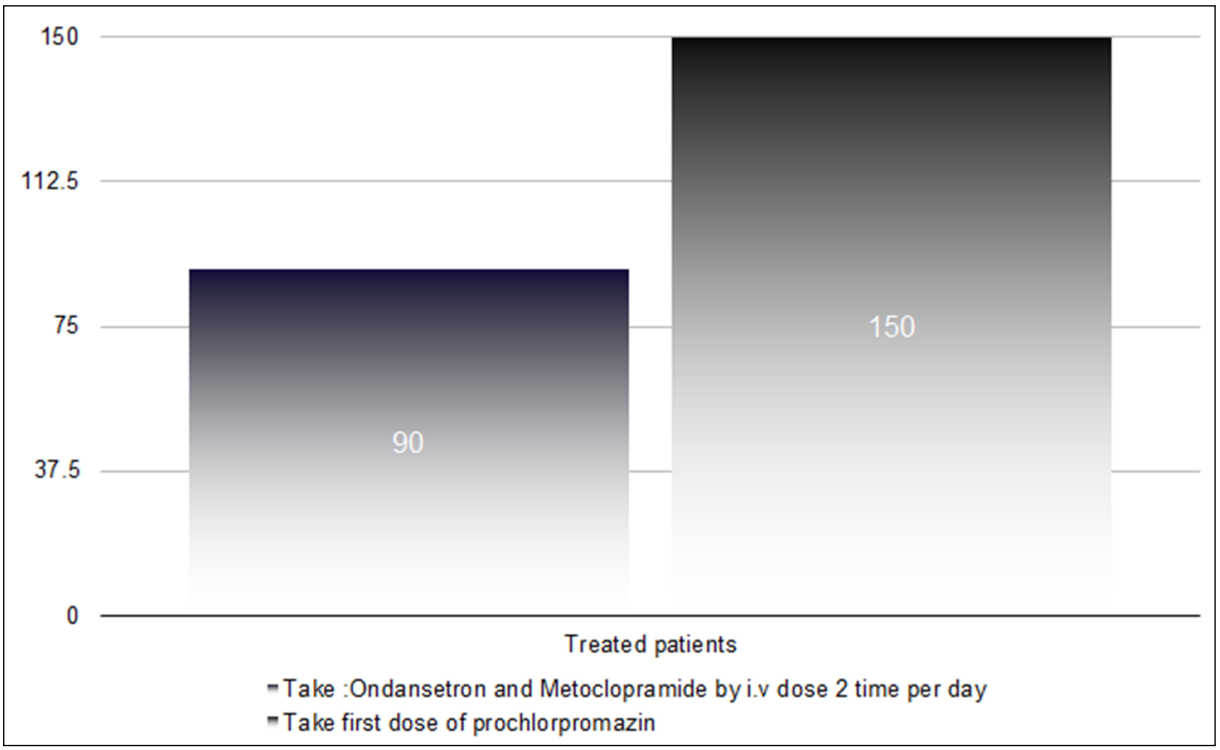

Fig 3: This figure below shows the differences between use the drug of choice (2i.v. dose of ondansetron, or 3i.v. dose of metoclopramide.) per day, and use of one i.m. dose of prochlorpromazine.

Discussion

Generally the main causes of vomiting is the harmful irritation of the vomit centers with direct\indirect irritation through many sites that responsible, such as; the gastrointestinal tube, the system of vestibule, the position of chemoreceptor triggers, and highest centers in thalamus, and cortex [7, 8, 9]. Metoclopramide lead to antiemetic effect by the inhibition of dopamine-D2, and the receptors of serotonin-5HT3 in the chemo-receptor trigger's position that found in the zone brain postrema. The administration of medicine documented that the prokine effect through the inhibited action on the receptors of pre-synaptic, and post-synaptic D2, the receptors of serotonin 5HT4 agonism, and the antagonism of muscarinic receptors inhibited. This process promotes the releasing of acetyl-choline, causes the increasing of low esophagus sphincter L.E.S, and gastric-tone, accelerates the gastric emptied, and transited via stomach. Metoclopramide is antagonized the receptors of dopamineD2 [4, 6]. Dopamine overworks relaxation effects on the tube gastro intestine by its attachment to the receptors of muscular-D2. While ondansetron drug regarded as antagonistic selective of the serotonins receptor subtypes 5HT3. The cytotoxicity of chemo-therapy, and radio-therapy related to the released of serotonin 5HT3 from entero-chromaffin cells of the intestine, perchance initiated a vomit reflexes by the irritation of 5HT3 receptors that present with vagal-afferent. The treatment by ondansetron prevent the initiated of that reflexed. The activated of vagal-afferent lead to the central-released of serotonin by this chemo-receptor irritation position of the zone postrema, that found on the flat of the (4^{th}-ventricle). So, the anti-emetic effective of ondansetron possibly because of the selective anta-gonism of 5HT3-receptors on the nerve cells that present in the peripheral or central nervous systems, or both [5, 6]. Though the mechanical action of ondansetron in treat the postoperative (nausea, vomiting, and cytotoxicity) that lead nausea and vomiting may proportion with same pathways, the function of ondansetron in opiate induced emesis has not yet been officially established. But the processes of prochlorperazine activity hasnt been totally deteted, but it is at first associated to its anti-dopaminergic effect. Prochlorperazine prevents the receptors of D2dopamine in the central nervous system.

The inhibited of D2receptor signs outcome by prevent the receptors of post-synaptic dopamine that found in the mesolimbic system, and raised turnover of dopamine. Vomit and nausea, suggested for arising by central\peripheral stimulate of serotonin-type3 (5HT3), and dopamine-type2 receptors, the predominant receptors express at the chemo-receptor triggers location. Prochlorperazine act as antiemetic effect, and is shown for the inhibitory action of apomorphine induced vomiting by preventing D2-dopamine receptors in the chemoreceptor trigger location. the terminal elimination half live were 9 and 8 hours, when compared to Ondansetron, and Metoclopramide (because there half live differs by patients age) [9, 10].

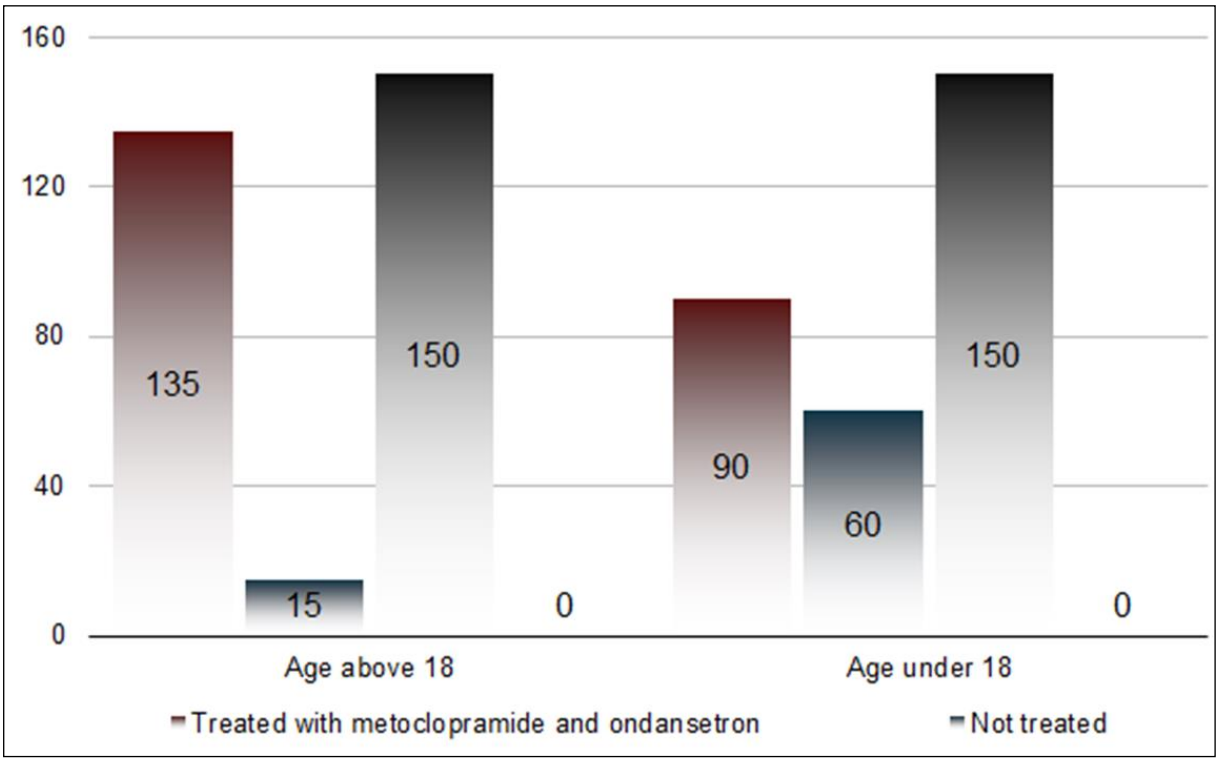

Fig 4: shown how age is effected by given treatment.

Conclusions & Recommendations

Although there are a number of clinical trials that are able to clearly distinguish some drugs, there may be an overlap in the effect of some of them on others. Patients who suffer from nausea and vomiting during the postoperative period, therefore, the choice of promethazine, prochlorperazine, and ondansetron is appropriate for treatment. But, we saw a dramatic effect when we use the prochlorpromazine for patients with post-contusion vomiting or nausea with headache…

So, when we give ondansetron (i.v.) 2 dose per day, we find that 40% of patients stop vomiting by comparing with metoclopramide (i.v.) 3 dose per day, we find that 60% stop vomiting for patients who are older than 18 years old and 90% for patients below 18 years old, But the other persist vomited. When, we turn to use prochlorpromazine (i.m.) as first choice drug, we so that 100% stop vomiting from the first dose in all patients with various age. So, the main goal of this research is to make the prochlorpromazine is the first choice drug to treat patients with post-contusion vomiting or nausea.

References

1. Hornby PJ. "Central neurocircuitry associated with emesis", The American Journal of Medicine,2001:111:8A(8):106S-112S, doi:10.1016/S0002-9343(01)00849-X, PMID 11749934.
2. Decker WJ. "In Quest of Emesis: Fact, Fable, and Fancy", Clinical Toxicology,1971:4(3):383-387. doi:10.3109/15563657108990490, PMID 4151103.
3. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3006663.
4. Lippincott Illustrated Reviews: Pharmacology Sixth Edition, Karen Whalen, Pharm.D. BCPS, 408-409.
5. https://reference.medscape.com/drug/342055?src=mbl_msp_iphone
6. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3006663/
7. Yilmaz HL, Yildizdas RD, Sertdemir Y. Clinical trial: oral ondansetron for reducing vomiting secondary to acute gastroenteritis in children--a double-blind randomized study. Aliment Pharmacol Ther.,2010:31(1):82-91. doi: 10.1111/j.1365-2036.2009.04145.x. Epub.
8. Lee A, Kuo B. Metoclopramide in the treatment of diabetic gastroparesis. Expert Rev Endocrinol Metab.,2010:5(5):653-662.
9. Perwitasari DA, Gelderblom H, Atthobari J, Mustofa M, Dwiprahasto I, Nortier JW *et al*. Anti-emetic drugs in oncology: pharmacology and individualization by pharmacogenetics. Int J Clin Pharm.,2011:33(1):33-43. doi: 10.1007/s11096-010-9454-1. Epub 2011 Jan 28
10. Taylor WB, Bateman DN. Preliminary studies of the pharmacokinetics and pharmacodynamics of prochlorperazine in healthy volunteers. Br J Clin Pharmacol.,1987:23(2):137-42. doi: 10.1111/j.1365-2125.1987.tb03021.x.