

# Comparison of Nausea and Vomiting in Patients Receiving Dexamethasone With Intravenous Methocloperamide Under Bronchoscopy with Total Intravenous Anesthesia

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## Abstract:-

**Background:** Anesthesia and bronchoscopy procedures are associated with postoperative symptoms that cause patient dissatisfaction with anesthesia. The most common symptoms include pain, nausea and vomiting, it is not uncommon for nausea and vomiting to occur on an outpatient basis which will eventually delay the patient's return from the hospital and leave. **Methods:** This study was followed by 26 patients using a double-blind randomized method, ASA 1 to 4, which were divided into 2 groups of 13 patients in each group. Group A was given dexamethasone 5mg intravenously while group B was given metoclopramide 10 mg intravenously. **Results:** The incidence of PONV in the administration of Dexamethasone 5mg/iv after bronchoscopy was 1 person (7.7%) during the first 24 hours. While giving metoclopramide 10mg/iv were 3 people (23.0%) at the 0th hour, 3 people (23.0%) at the 2nd hour, 3 people (23.0%) at the 4th hour, and 2 people (15.3%) at 8th hour. At 24 hours, there was no PONV incident. **Conclusion:** The administration of 5 mg dexamethasone showed significant impact in order to decrease the PONV incidence towards the patients who undergo bronchoscopy with total intravenous.

**Keywords:-** nausea and vomiting, bronchoscopy, dexamethasone, metoclopramide.

## I. INTRODUCTION

Bronchoscopy is a medical examination procedure that has made a significant contribution to the health sector, especially pulmonology (Batra H2, 2018). Through bronchoscopy, the state of the airways starting from the larynx, trachea, bronchi, and bronchioles can be seen directly and clearly (National Heart, Lung, and Blood Institute, 2018). Anesthesia and bronchoscopy procedures are associated with a number of postoperative symptoms that cause patient dissatisfaction with anesthesia. The most common symptoms include: pain, dizziness, drowsiness, headache, nausea and vomiting. But the most common and troublesome symptoms are pain and emesis.

The mechanisms involved in nausea are complex. Opioids activate mu and delta opioid receptors in the chemoreceptor trigger zone (CTZ), thereby inducing vomiting. Dexamethasone is a synthetic form of

adrenocorticoid and acts primarily as a glucocorticoid receptor with little mineralocorticoid receptor function with a half-life of 36-72 hours, used as an anti-inflammatory or immunosuppressive agent. Subsequent studies have also found that dexamethasone can effectively prevent PONV induced by the use of epidural morphine to reduce postoperative pain. Metoclopramide is a dopamine antagonist, similar to procainamide as an anti-emetic that acts centrally in the Chemoreceptor Trigger Zone and peripherally by decreasing the sensitivity of visceral nerves that transmit afferent impulses from the gastrointestinal tract to the vomiting center (Farid R.M, 2015).

## II. METHODS

This study used a double-blind randomized clinical controlled trial to compare the incidence of nausea and vomiting in patients receiving intravenous dexamethasone and intravenous metoclopramide in patients undergoing bronchoscopy with Total Intravenous Anesthesia (TIVA) at RSUP. H. Adam Malik Medan. The sample is part of the research population that has met the inclusion criteria. Sampling was done by consecutive sampling. The sample was divided into 2 groups, namely: Group A received dexamethasone 5 mg/iv and Group B received metoclopramide 10 mg/iv. The data that has been collected is analyzed using a computer program. To analyze the incidence of nausea and vomiting between the two intervention groups, the Mann-Whitney test was used.

Testing for the normality of the distribution of numerical data was carried out using the Kolmogorov-Smirnov test and categorical data using the Chi-square test. This research was conducted after obtaining permission from the commission of research ethics in Faculty of Medicine, Universitas Sumatera Utara. Patients were previously explained about the objectives, benefits, and risks and matters associated with the study. Then they were asked to fill in the form of willingness to be a research subject (informed consent).

## III. RESULTS

The incidence of nausea and vomiting measured based on the nausea and vomiting score at 0, 2, 4, and 8 hours after bronchoscopy in group A and group B while in the recovery room or PACU can be seen in the following table:

Time	Therapy group		Total (n, %)	p-value
	Dexamethasone A	Metoclopramide B		
	n (%)	n (%)		
T0(0)				0.127
No nausea/vomiting	13 (100%)	10 (76.9%)	23 (88.4%)	
Nauseous	0 (0%)	1 (7.7%)	1 (3.8%)	
Vomit	0(0%)	1 (7.7%)	1 (3.8%)	
T1(2)				0.007
No nausea/vomiting	12 (92.3%)	10 (76.9%)	22 (84.6%)	
Nauseous	1 (7.7%)	4 (30.7%)	5 (19.2%)	
Vomit	0 (0%)	0 (0%)	0 (0%)	
T2(4)				0.001
No nausea/vomiting	13 (100%)	10 (76.9%)	23 (88.4%)	
Nauseous	0 (0%)	4 (30.7%)	4 (15.3%)	
Vomit	0(0%)	0 (0%)	0 (0%)	
T3(8)				0.005
No nausea/vomiting	13 (100%)	10 (76.9%)	24 (92.3%)	
Nauseous	0 (0%)	4 (30.7%)	2 (7.7%)	
Vomit	0(0%)	0 (0%)	0 (0%)	

Table 1: The incidence of nausea and vomiting at 0, 2, 4, and 8 hours after bronchoscopy

°Chi-square test

#### IV. DISCUSSIONS

The incidence of PONV in the administration of Dexamethasone 5 mg/iv after bronchoscopy was 1 person (7.7%) at the 2nd hour, 1 person (7.7%) at the 4th hour. While the 10 mg/iv metoclopramide administration was 1 person (7.7%) and 1 (7.7%) people vomited at the 0, 4 people (30.7%) at the 2nd hour, 3 people (23.0) at the 4th hour; and 2 people (15.3%) at the 8th hour. In this study, there was no statistically significant difference between the two groups for the incidence of nausea and vomiting as measured by the nausea and vomiting score at 0 hours after bronchoscopy with  $p > 0.05$  although clinically, nausea and vomiting were found in the metoclopramide group. while in the dexamethasone group, there was no incidence of nausea and vomiting. Therefore, dexamethasone was more effective in preventing nausea and vomiting 0 hours after administration. However, there were study subjects who received metoclopramide did not experience nausea and vomiting (Widana I.W. 2015)

There was a significant difference in the incidence of nausea and vomiting at the 2nd, 4th and 8th hours after bronchoscopy after giving dexamethasone 5mg/iv compared to metoclopramide 10mg/iv with  $p < 0.05$ . From the results of this study, it can be concluded that dexamethasone has a better effect on reducing and preventing nausea and vomiting 24 hours after bronchoscopy than metoclopramide.

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In this study, nausea that occurred no more than 30 minutes and vomiting that occurred no more than 2 times so that no rescue emetic was given.

However, the duration of bronchoscopy was not the only risk factor for PONV in this study because a history of previous chemotherapy, use of opioids, the amount of fluid (crystalloid) before the procedure and during the procedure used, etc., can be other risk factors that can increase the incidence. PONV. (Miller RD,2014)

#### V. CONCLUSION

Giving dexamethasone 5mg/iv is better than metoclopramide 10mg/iv as an antiemetic to reduce the incidence of PONV in patients undergoing bronchoscopy with total intravenous anesthesia. The incidence of PONV on the administration of Dexamethasone 5mg/iv after bronchoscopy was 1 person (7.7%) at the 2nd hour, 1 person (7.7%) at the 4th hour. The incidence of PONV on metoclopramide 10mg/iv was 1 person (7.7%) and 1 (7.7%) people vomited at the 0, 4 people (30.7%) at the 2nd hour, 3 people (23.0) at the 4th hour; and 2 people (15.3%) at the 8th hour.

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