Comparison The Events Of Postoperative Sore Throat In Patients Undergoing Surgery With General Anesthesia Endotracheal Tube After The Administration Of Dexamethason And NACL 0.9% At Haji Adam Malik Hospital Medan

Wicak Kunto Wibowo[*], Achsanuddin Hanafie[**], Muhammad Arshad[**], Akhyar Hamonangan Nasution[**]

[*]Resident of Anaesthesiology and Intensive Therapy, Faculty of Medicine, Universitas Sumatera Utara, Medan, Indonesia
[**]Departement of Anaesthesiology and Intensive Therapy, Faculty of Medicine, Universitas Sumatera Utara, Medan, Indonesia

DOI: 10.29322/IJSRP.10.01.2020.p9725
http://dx.doi.org/10.29322/IJSRP.10.01.2020.p9725

***Abstract*- Introduction:** Most surgeries require general anesthesia, where one of its complication is sore throat. Sore throat can reduce patient's satisfaction and increase postoperative discomfort ranging from 17% to 76%. Some way to reduce this complication are to restrict physical trauma arising from instrumentation and airway manipulation.

Objective: To determine the difference in throat pain by administering intravenous dexamethasone versus intravenous NaCl 0,9% in postoperative patients with general anesthesia endotracheal tube at Haji Adam Malik General Hospital, Medan.

Method: This research is an experimental research with a double-blind randomized research design. After obtaining approval from the Ethics Committee, Medical Faculty, University of North Sumatra, Medan, 62 samples were collected, ages 21-60 years, PS-ASA I-II, agree to participate, informed consent approval, and operating time < 3 hours. After being calculated statistically, all samples were randomly divided into 2 groups. Group A received 10 mg dexamethasone and group B received NaCl 0,9%. Data were tested with the Mann Whitney Test with a significance of $p<0.05$.

Results: The mean VAS value in patients who was given by dexamethasone were VAS 2 for T1 and T2, and VAS 1 for T3 and T4. The mean VAS value in patients who was given by NaCl 0.9% were VAS 3 for T1, VAS 2 for T2 and T3, and VAS 1 for T4.

Conclusion: There was a statistically significant difference after administering dexamethasone compared with NaCl 0,9%.

***Index Terms*-** general anesthesia, sore throat, VAS, dexamethasone, NaCl 0.9%

I. Introduction

Postoperative Sore Throat (POST) is one of many complications that can occur in patients undergoing general anesthesia techniques with intubation using the endotracheal tube. These complaints usually improve after the first 24 hours. POST is the 8th biggest complaint for patients undergoing general anesthesia, where the most cause is the use of an endotracheal tube using a balloon during surgery.[1] POST is a complication that decreases patient satisfaction and increases discomfort in the postoperative period.[2] The incidence of POST after general anesthesia with endotracheal tube (ETT) ranges from 17% to 76%. This occurs because of irritation and inflammation of the airway and damage to the tracheal mucosa due to pressure of the endotracheal tube.[3] Several studies had been carried out in an effort to reduce POST including limiting physical trauma that might result from instrumentation and airway manipulation, such as pharmacological interventions.[4]

Dexamethasone is a steroid drug whose mechanism of action is related to prevent the formation of prostaglandins and stimulate the release of endorphins, which affect mood and calmness. This drug have anti-inflammatory and immunosuppressant effect.[5] As we all know that the reduction and inhibition of lymphocytes and peripheral macrophages play a role in this effect. Also indirect inhibition of phospholipase A2 which inhibits the release of arachidonic acid, prostaglandin and leukotriene precursors, from membrane-bound phospholipids.[6]

II. METHODS

This study is a double blind randomized experimental study to determine the comparison of postoperative sore throat pain with general anesthesia using endothracheal tube anesthesia in intravenous dexamethasone administration and intravenous NaCl 0.9%. This research was conducted at the Haji Adam Malik General Hospital, Medan, Juli 2019. The population was all patients who underwent elective surgery at the Haji Adam Malik General Hospital, Medan. Samples obtained in this study were 62 samples that fit the inclusion and exclusion criteria. All samples were divided into 2 groups. Group A received 2ml dexamethasone 5mg and group B received 2ml NaCl 0.9%. Data were tested by Chi Square with significance of $p<0.05$.

III. RESULTS

The study was followed by 62 subjects who were divided into two groups with the same amount, each as many as 31 people where group A received 2ml dexamethasone 5mg and group B received 2ml NaCl 0.9%.

3.1 Demographic Data Table

Characteristic	Dexamethasone	NaCl 0,9%	*p-value*
Gender, n (%)			
Male	15 (48,3%)	13 (41,9%)	0,613
Female	16 (51,7%)	18 (58,1%)	
Age, mean ± SD	48,58 ± 13,55	46,58 ± 10,95	0,266
Body Weight ± SD	59,94 ± 5,78	58,35 ± 5,25	0,339
Body Height ± SD	1,56 ± 0,06	1,58 ± 0,09	0,297
BMI, mean ± SD	24,69 ± 2,86	24,72 ± 2,85	0,972
Duration of Intubation ± SD	148,87 ± 28,80	149,35 ± 39,40	0,920
ASA			
ASA 1	3 (9,6%)	7 (22,5%)	0,171
ASA 2	28 (90,3%)	24 (77,4%)	
Total	**31**	**31**	

In this study, gender found in samples at the most were female with 54.8%, and with an average age of sample was 47.58 years. For the mean body mass index (BMI) at sample was 24.71 kg / m2 which shows normoweight. Patients in this study were mostly in ASA 2 of 83.8%. In addition to this study, it was found that the characteristic data in this study were gender, age, weight, height, body mass index, duration of intubation, and ASA had some data that were not normally distributed with p values <0.05. After further testing was carried out to assess homogeneity, it is concluded that the data obtained are homogeneous with p-value > 0.05. Therefore, to carry out further tests to assess the relationship, the Mann Withney Test was conducted with a 95% confidence level.

3.2 Average of VAS Value on POST Patients with General Anesthesia Endotracheal Tube After the Administration of Dexamethasone and NaCl 0.9% at T1 (1 Hour Post-Extubation), T2 (6 Hours Post-Extubation), T3 (12 Hours Post-Extubation), T4 (24 Hours Post-Extubation).

	Mean (± SD) Dexamethasone	NaCl 0,9%	p-value
VAS T1	2,00 (0,577)	2,74 (0,729)	0,001
VAS T2	1,74 (0,445)	2,48 (0,677)	0,001
VAS T3	1,10 (0,301)	1,84 (0,735)	0,001
VAS T4	1,06 (0,250)	1,52 (0,626)	0,001

Mann Whitney Test, α<005

Based on Table 3.2, it was found that the mean VAS of POST patients in the group that had previously been given dexamethasone was at VAS 2 at T1, and VAS 1 at T2, T3, and T4. Whereas in groups that had previously been given 0.9% NaCl injections were in VAS 2 at T1, T2 and VAS 1 at T3, and T4. Statistically there were significant differences in the VAS POST patients after administration of dexamethasone and NaCl 0.9% on T1, T2, T3, and T4 observations with p values of 0.001 (<0.05), respectively.

3.3 Comparison of VAS Value on POST Patients with General Anesthesia Endotracheal Tube after Administration of Dexamethasone and NaCl 0.9% at T1

	VAS 1 n (%)	VAS 2 n (%)	VAS 3 n (%)	VAS 4 n (%)	Total	P-value
Dexamethasone	5 (16,1)	21(67,7)	5 (16,1)	0 (0)	31 (100)	0,001
NaCl 0,9%	1 (3,2)	10 (32,3,7)	16 (51,6)	4 (12,9)	31 (100)	
Total	**6 (9,6)**	**31 (50,0)**	**21 (33,8)**	**4 (6,4)**	**62 (100)**	

Mann Whitney Test, α<005

Based on table 3.3 it was found that the VAS value of POST patients in the group that had previously been given dexamethasone injection was seen more at VAS 2 (21 patients = 67.7%) while in the group that had previously been given NaCl 0.9% injection had VAS 3 values were 16 patients (51.6%). In addition, in the dexamethasone group there were no patients with a VAS 4 value, while in the NaCl 0.9% group there were still patients with a VAS 4 value (4 patients = 12.9%). Based on this it can be concluded that patients given dexamethasone have lower VAS values compared with 0.9% NaCl. Statistically there were significant differences in the VAS value of sore throat patients

after extubation after dexamethasone injection and NaCl 0.9% on T1 observations with p = 0.001 (<0.05).

3.4 Comparison of VAS values on POST Patients with General Anesthesia Endotracheal Tube after dexamethasone injection and 0.9% NaCl at T2

	VAS 1 n (%)	VAS 2 n (%)	VAS 3 n (%)	VAS 4 n (%)	Total	P-value
Dexamethasone	8 (25,8)	23(74,2)	0 (0)	0 (0)	31 (100)	0,001
NaCl 0,9%	1 (3,2)	16 (51,6)	12 (38,7)	2 (6,5)	31 (100)	
Total	**9 (14,5)**	**39 (62,9)**	**12 (19,3)**	**2 (3,2)**	**62 (100)**	

Mann Whitney Test, α<005

Based on table 3.4 it was found that in patients given dexamethasone not found to experience VAS 3 and VAS 4, but in the group given NaCl 0.9% there were still experienced VAS 3 (12 people = 38.7%) and VAS 4 (2 people = 6.5%). In addition, the dexamethasone group experienced more VAS 2 (23 people = 74.2%) compared to the NaCl 0.9% group (16 people = 51.6%). Statistically there were significant differences in the VAS value of POST patients with general anesthesia endotracheal tube after dexamethasone injection and NaCl 0.9% on T2 observations with p = 0.001 (<0.05).

3.5 Comparison of VAS Value on POST Patients with General Anesthesia Endotracheal Tube After Dexamethasone Injection and NaCl 0.9% at T3

	VAS 1 n (%)	VAS 2 n (%)	VAS 3 n (%)	Total	P-value
Dexamethasone	28 (90,3)	3 (9,7)	0 (0)	31 (100)	0,001
NaCl 0,9%	11 (35,5)	14 (45,2)	6 (19,4)	31 (100)	
Total	**39 (62,9)**	**17 (27,4)**	**6 (9,6)**	**62 (100)**	

Mann Whitney Test, α<005

Based on table 3.5, it was found that patients who were given dexamethasone were not found to have VAS 3, but in the group given NaCl 0.9% there were still those who experienced VAS 3 as many as 6 people (19.4%). In addition, the dexamethasone group experienced more VAS 1 (28 people = 90.3%) compared to the NaCl 0.9% group who experienced more VAS 2 (14 people = 45.2%). Statistically there were significant differences in the VAS value of POST patients with general anesthesia endotracheal tube after dexamethasone injection and NaCl 0.9% on T3 observations with p = 0.001 (<0.05).

3.6 Comparison of VAS Value on POST Patients with General Anesthesia Endotracheal Tube After Dexamethasone and NaCl Injections of 0.9% at T4

	VAS 1 n (%)	VAS 2 n (%)	VAS 3 n (%)	Total	P-value
Dexamethasone	29 (93,5)	2 (6,5)	0 (0)	31 (100)	0,001
NaCl 0,9%	17 (54,8)	12 (38,7)	2 (6,5)	31 (100)	
Total	**46 (74,1)**	**14 (22,5)**	**2 (3,2)**	**62 (100)**	

Mann Whitney Test, α<005

Based on table 3.6, it was found that patients who were given dexamethasone were not found to have VAS 3, but in the group given 0.9% NaCl there were still 2 patients with VAS 3 (6.5%). In addition, the dexamethasone group experienced more VAS 1 (29 people = 93.5%) compared to the NaCl 0.9% group (17 people = 54.8%). Statistically there were significant differences in the VAS value of POST patients with general anesthesia endotracheal tube after dexamethasone injection and NaCl 0.9% at T4 with p value = 0.001 (<0.05).

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IV. CONCLUSIONS

4.1. The mean VAS value of POST patients in the group that had previously been given dexamethasone injection was VAS 2 for T1 and T2; and VAS 1 for T3 and T4.

4.2. The mean VAS value of POST patients in the group that had previously been given NaCl 0.9% injection was VAS 3 for T1; VAS 2 for T2 and T3; and VAS 1 for T4

4.3. Statistically, there are significant differences in the VAS value of POST patients after dexamethasone injection and NaCl 0.9% on observations of T1, T2, T3, and T4 with p values of 0.001 respectively.

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AUTHORS

First Author – Wicak Kunto Wibowo, Post graduate of Anaesthesiology and Intensive Therapy, Faculty of Medicine, Universitas Sumatera Utara, Medan, Indonesia, wicakkuntowibowo@gmail.com

Second Author – Achsanuddin Hanafie, Anaesthesiology and Intensive Therapy, Faculty of Medicine, Universitas Sumatera Utara,Medan, Indonesia, achsanuddinhanafie@gmail.com

Third Author – Muhammad Arshad, Anaesthesiology and Intensive Therapy, Faculty of Medicine, Universitas Sumatera Utara,Medan, Indonesia, muhammadarshad@gmail.com

Fourth Author – Akhyar Hamonangan Nasution, Anaesthesiology and Intensive Therapy, Faculty of Medicine, Universitas Sumatera Utara,Medan, Indonesia, akhyarnasution@gmail.com