

**CONTROL OF POST OPERATIVE PAIN BY PRE- TONSILLECTOMY PERITONSILLAR INFILTRATION**Shamendra Kumar Meena<sup>1</sup>, Rajkumar Jain<sup>2</sup>, Vijay Kumar Meena<sup>3</sup>, Ramraj Meena<sup>4</sup>, Muniram Meena<sup>5</sup>**HOW TO CITE THIS ARTICLE:**

Shamendra Kumar Meena, Rajkumar Jain, Vijay Kumar Meena, Ramraj Meena, Muniram Meena. "Control of Post-Operative Pain by Pre-Tonsillectomy Peritonsillar Infiltration". Journal of Evolution of Medical and Dental Sciences 2015; Vol. 4, Issue 69, August 27; Page: 12052-12067, DOI: 10.14260/jemds/2015/1737

**ABSTRACT:** Pain is a highly unpleasant sensory and emotional experience and postoperative pain control in children is a big challenge for their inability to express and react. In the past two decades, there has been a considerable progress in the understanding of children's perception of pain and responses to pain and various pharmacological agents and analgesic delivery to avoid under treatment of pain in children.

**KEYWORDS:** Peritonsillar Infiltration Kylo. J Achr.

**INTRODUCTION & HISTORY:** Pain is a highly unpleasant sensory and emotional experience and postoperative pain control in children is a big challenge for their inability to express and react. In the past two decades, there has been a considerable progress in the understanding of children's perception of pain and responses to pain and various pharmacological agents and analgesic delivery to avoid under treatment of pain in children. A parallel noteworthy advancement has occurred in the knowledge of anatomy, physiology and pharmacology of regional anesthetic techniques. Some of these techniques are now an integral part of perioperative and procedure- related pain management in all ages, in part because of a greater concern about postoperative pain management in patients and in part because of technical advances in equipment to perform the blocks. Tonsillectomy is a very common day care procedure that is associated with significant postoperative pain. This pain has traditionally been treated with opioid analgesics and non- steroidal anti-inflammatory drugs: however, these agents are associated with increased risks to respiratory depression and postoperative bleeding, respectively. Doshi J 2008 et al.<sup>(1)</sup>

**AIMS & OBJECTIVES:**

1. To Provide Post Tonsillectomy Analgesia to patients.
2. To evaluate the post-operative analgesic efficacy of pre incisional peritonsillar (PT) infiltration using various agents.
3. To evaluate the effect of various agents infiltration on start of oral intake and discharge from the hospital after tonsillectomy.
4. To investigate the possibility of any complication in relation to drugs infiltration into the peritonsillar Fossa.

**Grades of Tonsillar Hypertrophy James Chan (2004).<sup>(2)</sup>:****Standardized tonsillar hypertrophy grading scale:**

- (0+) Tonsils are entirely within the tonsillar Fossa.
- (1+) Tonsils occupy less than 25 percent of the lateral dimension of the oropharynx as measured between the anterior tonsillar pillars.

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- (2+) Tonsils occupy less than 50 percent of the lateral dimension of the oropharynx.
- (3+) Tonsils occupy less than 75 percent of the lateral dimension of the oropharynx.
- (4+) Tonsils occupy 75 percent or more of the lateral dimension of the oropharynx.

### INDICATIONS and CONTRAINDICATIONS:

#### INDICATIONS: Absolute Indications:

- Respiratory obstruction.
- Huge hypertrophy causing difficulty in feeding.
- Sleep apnea syndrome.

#### Relative Indication:

- Peritonsillar abscess.
- Chronic tonsillitis.
- Failure of medical treatment to reduce the size.
- More than 3-4 acute episodes in per year.
- Acting aseptic focus for rheumatic heart disease, glomerulonephritis, arthritis etc.
- Primary tuberculosis of the tonsil.
- Diphtheria carrier.
- Tumor of tonsils.
- Tonsillar cyst, tonsillolith, embedded FB in tonsils etc.
- Peritonsillar abscess.

#### Surgical Approaches:

- Elongated styloid process.
- Glossopharyngeal neurectomy.
- As a part of Uvulo- palato- pharyngo- plasty (UPPP).

#### CONTRAINDICATIONS:

- Active infection/Acute exacerbation, Aneurysm of internal carotid artery, age below 3 years, active menstruation.
- Bleeding/Clotting disorders.
- Cervical spine pathology.
- Diphtheritic tonsillitis,
- Drugs-aspirin, oral contraceptives etc.
- Endemic of polio.
- Failure to control systemic diseases like hypertension, diabetes, bronchial asthma, LRTI etc.

**MATERIAL & METHODS:** After approval of the study protocol by the local Ethical Committee and obtaining fully informed written consents, 60 patients assigned for tonsillectomy enrolled in the study of age group 5 to 35 yrs. The study conducted at Department of Otorhinolaryngology, MBS Hospital Kota Rajasthan from Dec. 2010 to Oct. 2012. Patients with history of bleeding diathesis allergy to study drugs, or tonsillar abscesses excluded from the study.

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Patients randomly divided into 6 equal study groups (n=10); Group I (Negative control group) included patients assigned to receive PT saline infiltration as placebo, Group II (Positive control group) included patients assigned to receive xylocaine (1%) PT infiltration. Group III included patients assigned to receive tramadol (2mg/kg) PT infiltration, Group IV included patients assigned to receive ketamine (0.5mg/Kg)<sup>(3)</sup> PT infiltration, Group V received combination of Bupivacaine (5mg/ml) with Tramadol (2mg/kg), Group VI received Bupivacaine (5mg/ml) with Ketamine (0.5mg/Kg). All medications prepared as 2ml in volume and injected as 1ml per tonsil 3 min. prior to incision (Pre-incisional).

All study patients premedicated with midazolam intravenously before the procedure and received nalbupine i.v. immediately after induction of general anesthesia.

A standard anesthetic protocol was constructed for all patients. The protocol consisted of the following:

**Premeditation:** Pethedin 1mg/kg intramuscular, 1 hour preoperatively

Item / Score	2	1	0
Respiration	Able to breathe deeply & cough freely	Dyspnea or limited breathing	Apnea
Blood Pressure	±20% pre-operative value	±20-49% pre-operative value	±50% pre-operative value
Activity	Able to move 4 limbs voluntarily or on command	Able to move 2 limbs voluntarily or on command	Unable to move limbs voluntarily or on command
Consciousness	Fully awake	Arousable on calling	Not responding
O <sub>2</sub> saturation	<92 % on air	>90 % with O <sub>2</sub> supplement	<90% even with O <sub>2</sub> supplement

**Table: 1 Constituents Parameters of Aldrete Score<sup>4</sup>**

Item / Score	0	1	2
Blood Pressure	±10 % pre-operative value	>20% pre-operative value	>50% pre-operative
Crying	Not Crying	Crying but responds to loving care	Crying and does not respond to loving care
Movement	None	Restless	Thrashing
Agitation	Asleep or Calm	Mild	Hysterical
Posture	No Special	Flexing legs and thighs	Holding scrotum or groin

**Table: 2 Constituents Parameters of OPS Score<sup>5</sup>**

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**OPERATIVE TECHNIQUES:** Tonsillectomy operation performed by dissection method. Before making incision, infiltration of tonsillar bed through ant. Pillar with various analgesic agents like xylocaine, Ketamine. Tramadol & Placebo (Normal Saline), bupivacaine with tramadol/ketamine as their combination (Regimen).

**OBSERVATION AND RESULTS:** Patients randomly divided into 6 equal study groups (n=10); Group 1 (Negative control group) included patients assigned to receive PT saline infiltration as placebo; Group 2 (Positive control group) included patients assigned to receive xylocaine (1%) PT infiltration. Group 3 included patients assigned to receive tramadol (2mg/kg) PT infiltration, Group 4 included patients assigned to receive ketamine (0.5mg/Kg) PT infiltration, Group 5 received combination of Bupivacaine (5mg/ml) with Tramadol (2mg/kg), Group 6 received Bupivacaine (5mg/ml) with Ketamine (0.5mg/Kg):

- Gp1-normal saline.
- Gp2-xylocaine (1%).
- Gp3-tramadol (2mg/kg).
- Gp4-ketamine (0.5mg/kg).
- Gp5-bupivacaine (5mg/ml) with tramadol.
- Gp6-bupivacaine with ketamine.

**CONCLUSION AND SUMMARY:** # Preincisional infiltrations of various agents are effective method to reduce post-tonsillectomy pain. This method also effective for earlier start of oral feeding and discharge from the hospital.

# We recommend the routine use of pre incisional peritonsillar infiltration of various agents in all tonsillectomy cases, irrespective of the age of the patient to reduce the post-tonsillectomy pain and other morbidities

**SUMMARY:** This is prospective, randomized, single blind controlled clinical trial to assess the effect of preincisional peritonsillar infiltration of various agents on pain after tonsillectomy, which was performed on Dec. 2010 till Oct. 2012 in the department of ENT, Govt. Medical College, Kota.

A volunteer sample of 60 patients, aged 5 to 35yrs with history of recurrent or chronic tonsillitis were included in this study and planned for tonsillectomy with or without adenoidectomy. Patients were divided into 6 equal study groups (n=10); Group I (Negative control group) included patients assigned to receive PT saline infiltration as placebo; Group II (Positive control group) included patients assigned to receive xylocaine PT infiltration. Group III include patients assigned to receive tramadol (2mg/kg) PT infiltration, Group IV included patients assigned to receive ketamine (0.5mg/Kg) PT infiltration, Group V received combination of Bupivacaine (5mg/ml) with Tramadol (2mg/kg), and Group VI received Bupivacaine (5mg/ml) with Ketamine (0.5mg/Kg).

All medications prepared as 2ml in volume and injected as 1ml per tonsil 3 min prior to incision (Pre-incisional).

Postoperative pain was assessed using OPS and ALDRETE score for severity of pain at different time after the surgery. The time of oral intake start and total admission days after the surgery also were noted.

Comparison of various agents for pain, oral intake and postoperative admission days were noted.

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No complication of preincisional peritonsillar infiltration of various agents was seen in this study.

**ACKNOWLEDGEMENT:** Achieving a milestone for any person alone is extremely difficult. However, there are motivators which come across the curvaceous path like twinkling stars in the sky and make our task much easier. It becomes my humble and foremost duty to acknowledge all of them. Words are always deficient to thank my parents Mrs. Dhapu devi, Mrs. Kanta devi and Mr. Khemraj meena also manda devi who have been my inspiration and motivation in all fields of life and without whose guidance, love and blessings, I would have never achieved this stage in my life. No words would be sufficient to express my gratitude to my Wife Deepti Meena and saket karol for sharing the journey of development of this project with me, for her deepest love, for understanding my feelings, for always being on my side in tense moments, for believing in me and for giving me expert feedback and advice.

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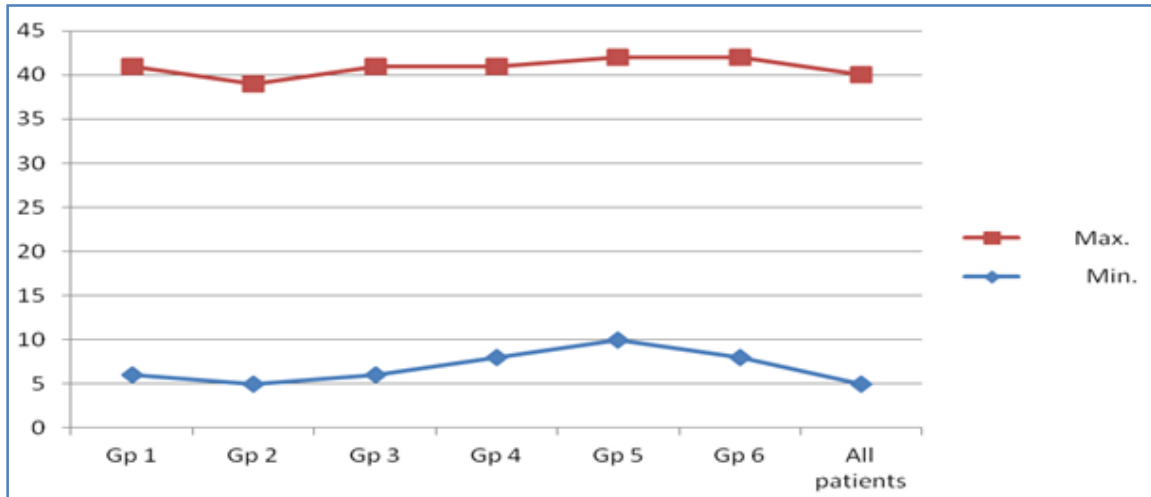
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PROFORMA			
DEPARTMENT OF E.N.T.			
MBS & ATTACHETED GROUP OF HOSPITAL & MEDICAL COLLEGE, KOTA			
Name.	Age	Sex	weight
Occupation.			
Address.	DOA	DOO	DOD
Chief Complaints:			
Past History:			
Personal history.			
Family history.			
Examination of Nose & throat: Ch. Tonsillitis Yes/ No.			
Any other important finding.			
Routine investigation: Hb, TLC, DLC, BT, CT, ESR, Platelet count, peripheral smear, <u>prothrombin</u> and activated <u>prothrombin</u> time.			
Compete Urine.			
Evaluation of renal and cardiac function if rheumatic disease is suspected.			
ECG in elderly patients.			
Chest X-ray PA view.			
X- Ray soft tissue lat. View <u>Nasopharynx</u> .			
Diagnostic nasal endoscopy for adenoid hypertrophy.			
Operative finding.			
Post-operative evaluation.			

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Age	Min.	Max.
Gp 1	6	35
Gp 2	5	34
Gp 3	6	35
Gp 4	8	33
Gp 5	10	32
Gp 6	8	34
All Patients	5	35

**Table 1: Age wise Distribution of patients**

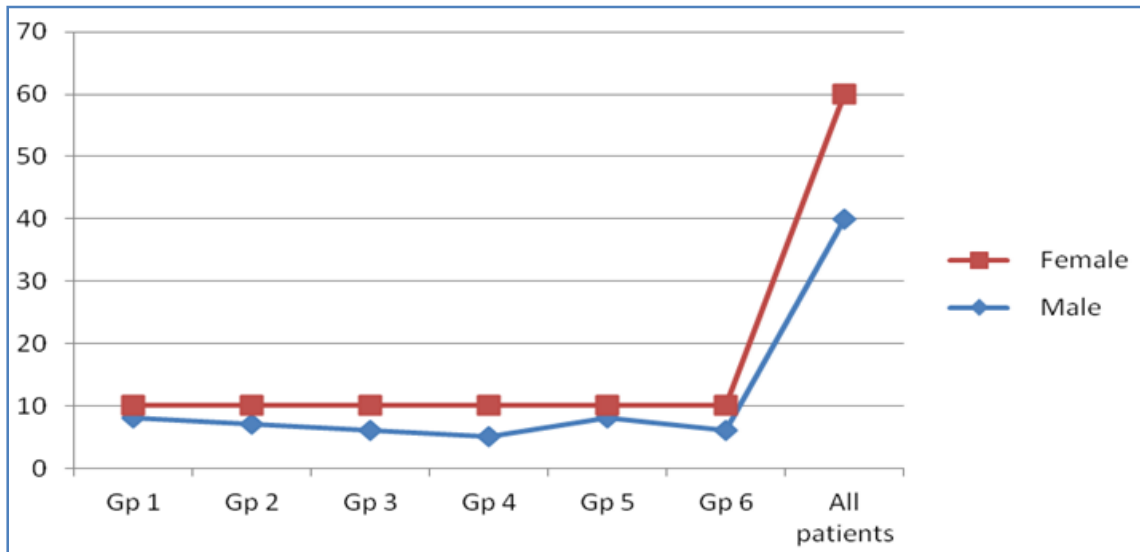


**Table 1**

Sex	Male	Female
Gp 1	8	2
Gp 2	7	3
Gp 3	6	4
Gp 4	5	5
Gp 5	8	2
Gp 6	6	4
All Patients	40	20

**Table 2: Sex wise Distribution of patients**

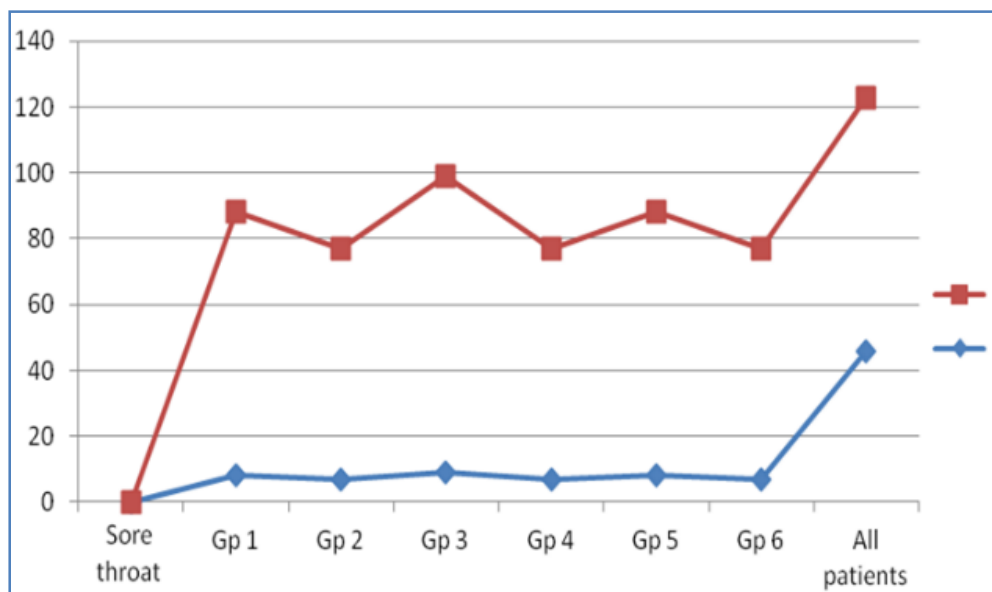
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**Table 2**

Sore Throat	Number of pts.	percentage
Gp 1	8	80
Gp 2	7	70
Gp 3	9	90
Gp 4	7	70
Gp 5	8	80
Gp 6	7	70
All Patients	46	76.6

**Table 3: Distribution of patients according to recurrent attack of Sore throat**

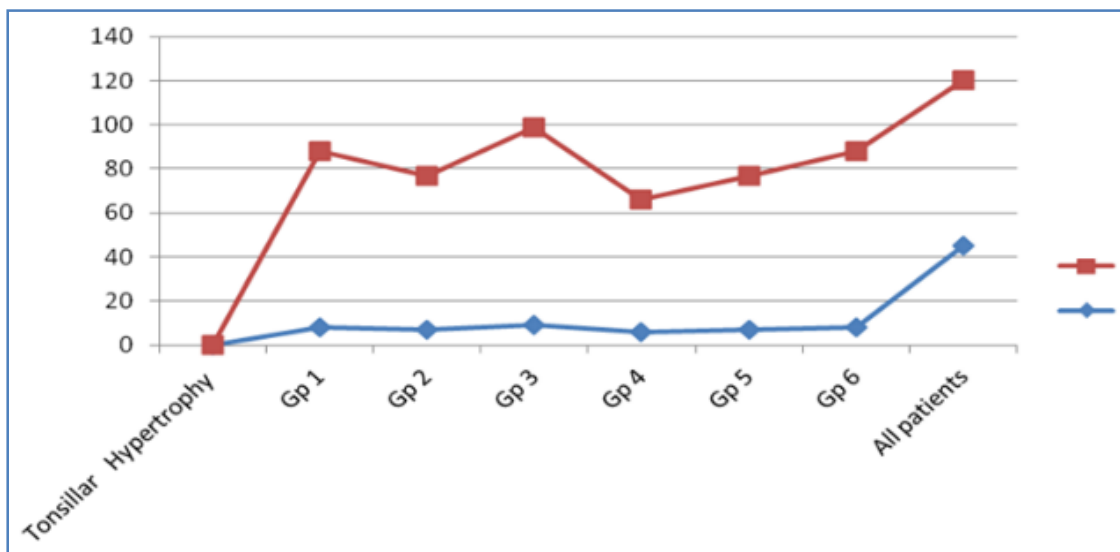


**Table 3**

## ORIGINAL ARTICLE

Tonsillar Hypertrophy	Number	Percentage
Gp 1	8	80
Gp 2	7	70
Gp 3	9	90
Gp 4	6	60
Gp 5	7	70
Gp 6	8	80
All Patients	45	75

**Table 4: Distribution of patients according to Tonsillar Hypertrophy**



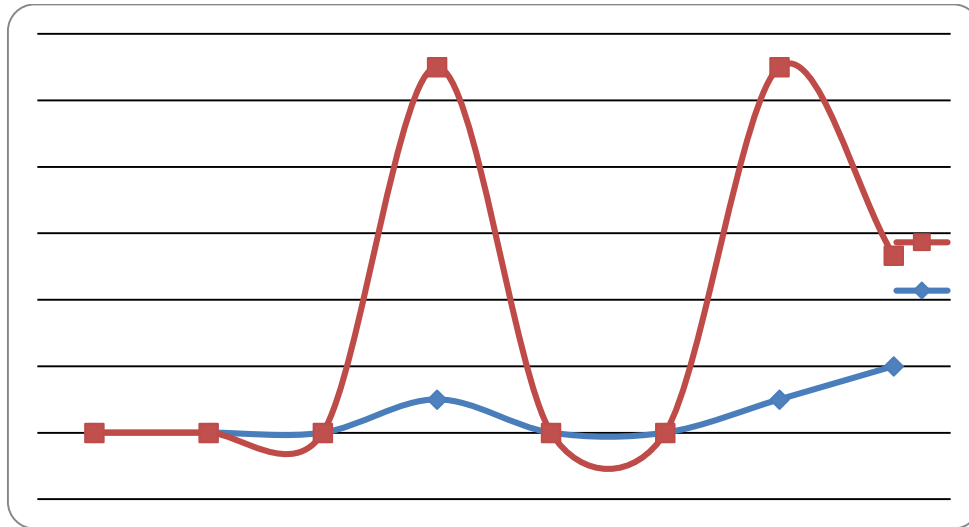
**Table 4**

Breathing Difficulty	Number	Percentage
Gp 1	0	0
Gp 2	0	0
Gp 3	1	10
Gp 4	0	0
Gp 5	0	0
Gp 6	1	10
All Patients	2	3.33

**Table 5: Distribution of patients according to Breathing Difficulty**



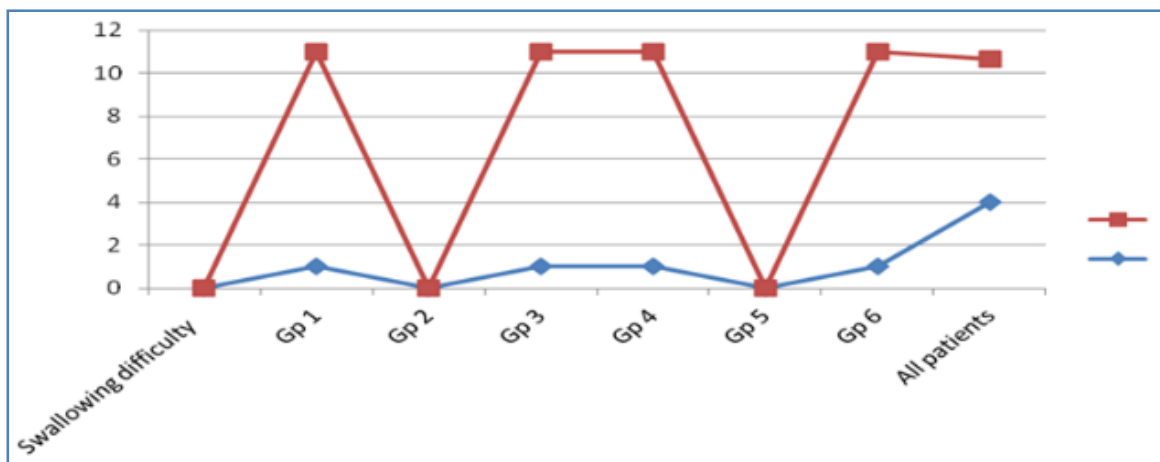
# ORIGINAL ARTICLE



**Table 5**

Swallowing Difficulty	Number	Percentage
Gp 1	1	10
Gp 2	0	0
Gp 3	1	10
Gp 4	1	10
Gp 5	0	0
Gp 6	1	10
All Patients	4	6.66

**Table 6: Distribution of patients according to swallowing difficulty**

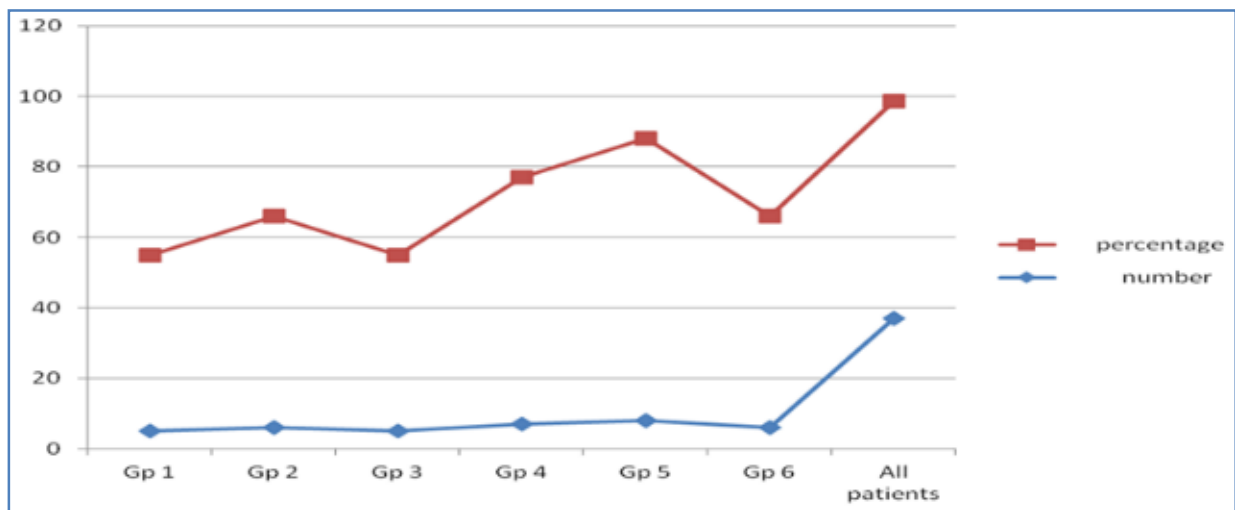


**Table 6**

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Fever	Number	Percentage
Gp 1	5	50
Gp 2	6	60
Gp 3	5	50
Gp 4	7	70
Gp 5	8	80
Gp 6	6	60
All patients	37	61.6

**Table 7: Distribution of patients according to recurrent attack of Fever**

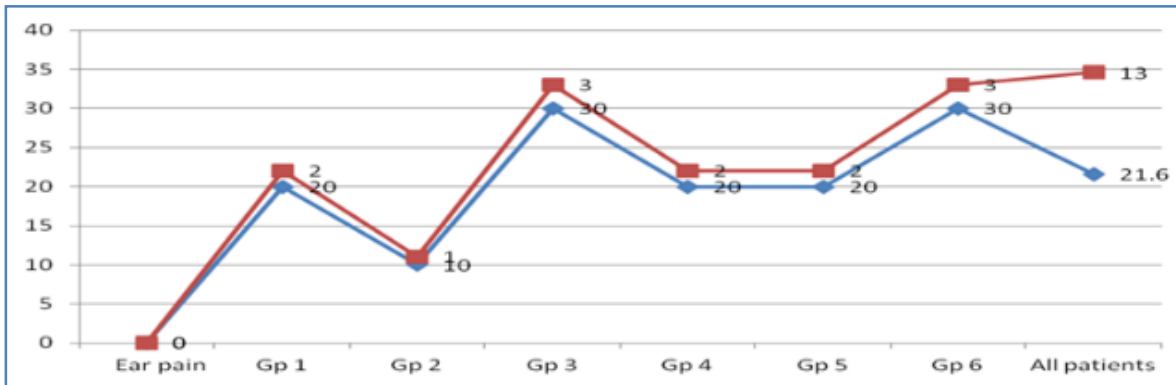


**Table 7**

Ear pain	Number	Number
Gp 1	2	20
Gp 2	1	10
Gp 3	3	30
Gp 4	2	20
Gp 5	2	20
Gp 6	3	30
All Patients	13	21.6

**Table 8: Distribution of patients according to Earache**

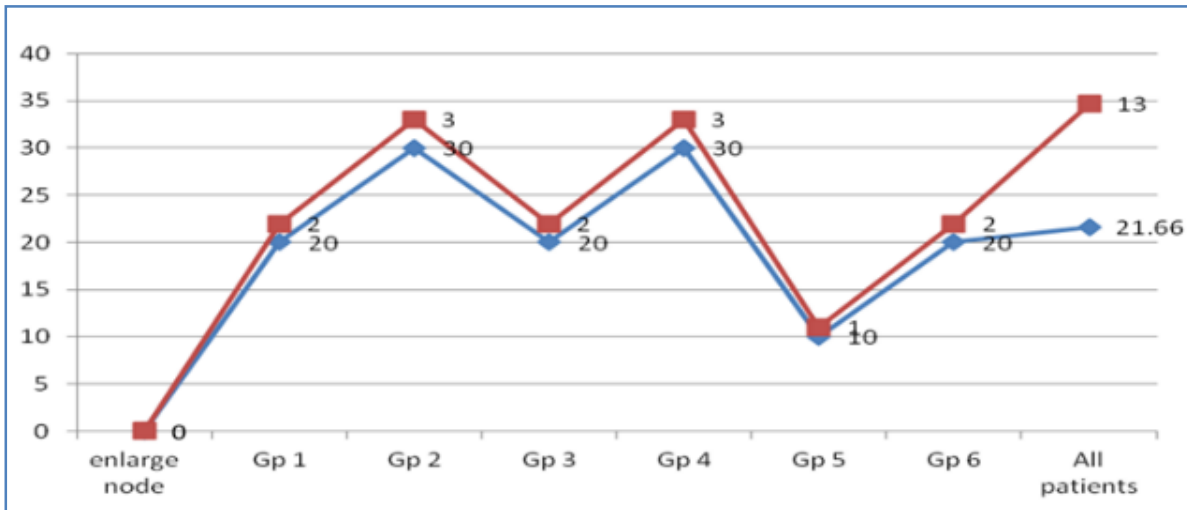
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**Table 8**

Enlarge node	Number	percentage
Gp 1	2	20
Gp 2	3	30
Gp 3	2	20
Gp 4	3	30
Gp 5	1	10
Gp 6	2	20
All patients	13	21.66

**Table 9: Distribution of patients according to Enlargement of Jugulodigastric node**

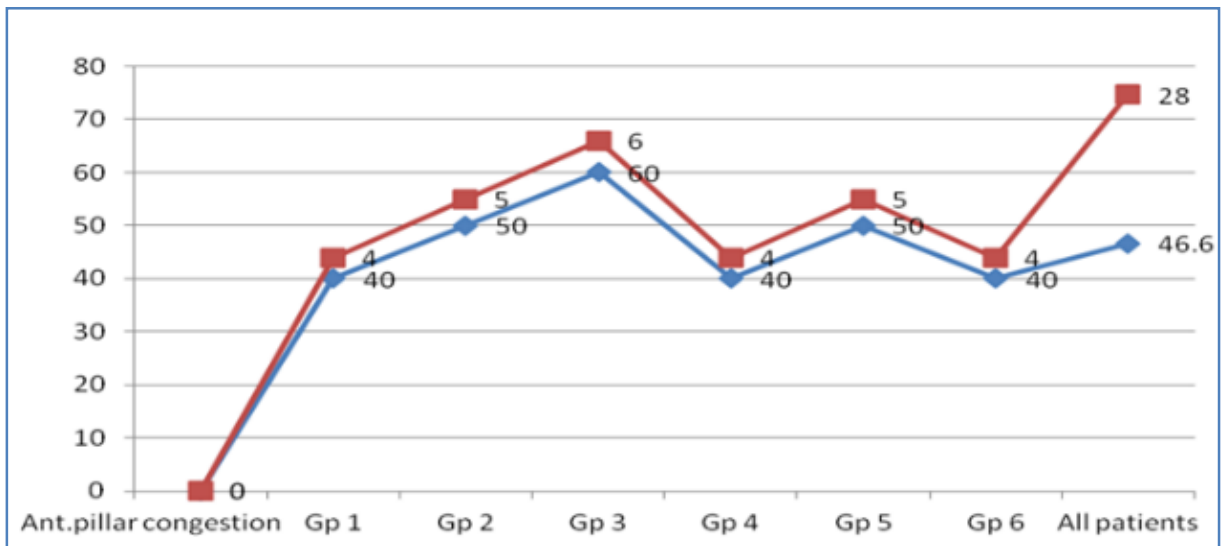


**Table 9**

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Ant. Pillar congestion	Number	Percentage
Gp 1	4	4
Gp 2	5	5
Gp 3	6	6
Gp 4	4	4
Gp 5	5	5
Gp 6	4	4
<b>All patients</b>	<b>28</b>	<b>46.6</b>

**Table 10: Distribution of patients according to Ant. Pillar Congestion**



**Table 10**

Headache	Number	Percentage
Gp 1	1	10
Gp 2	2	20
Gp 3	1	10
Gp 4	1	10
Gp 5	0	0
Gp 6	0	0
<b>All patients</b>	<b>5</b>	<b>8.33</b>

**Table 11: Distribution of patients according to Headache**

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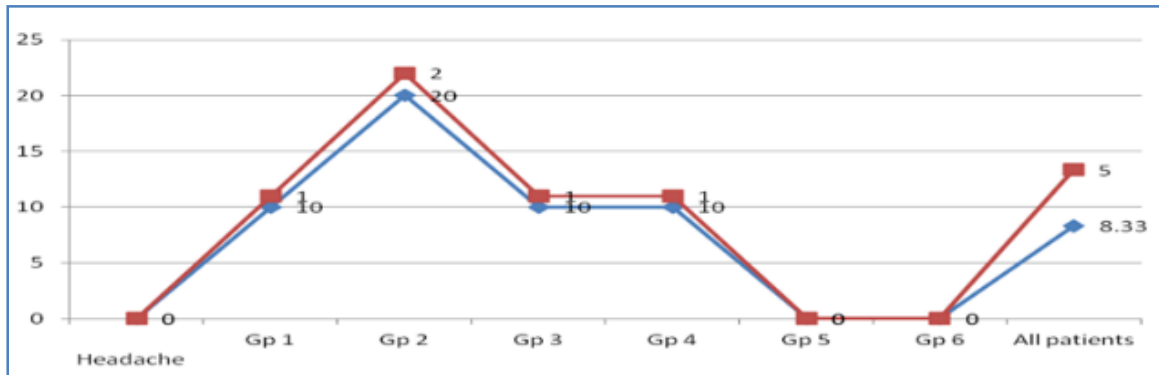


Table 11

Start oral intake in (hrs)	4th	6th	9th	12th
Gp 1	10	20	30	50
Gp 2	30	40	50	70
Gp 3	40	50	70	80
Gp 4	50	60	80	90
Gp 5	70	80	90	100
Gp 6	80	90	100	100
All Patients	46.6	56.6	70	81.6

Table 12: (b) Distribution of patient's according to Start oral intake (hrs. up to) post-operatively

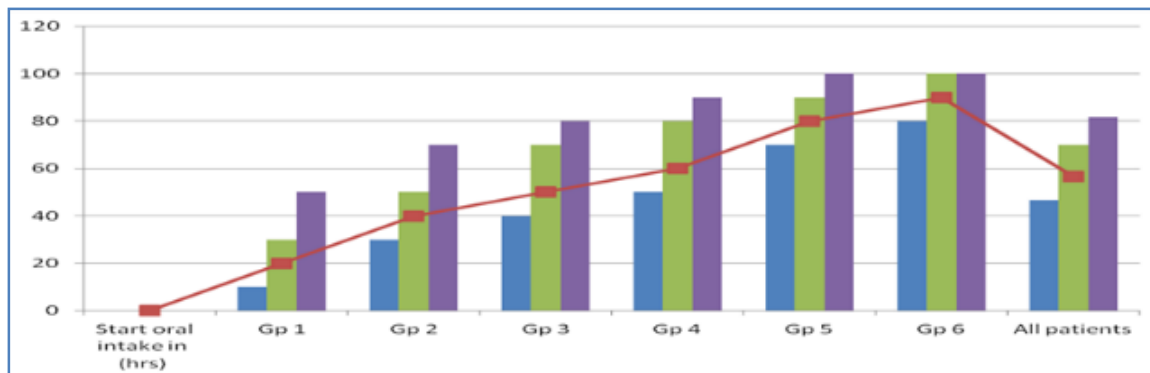
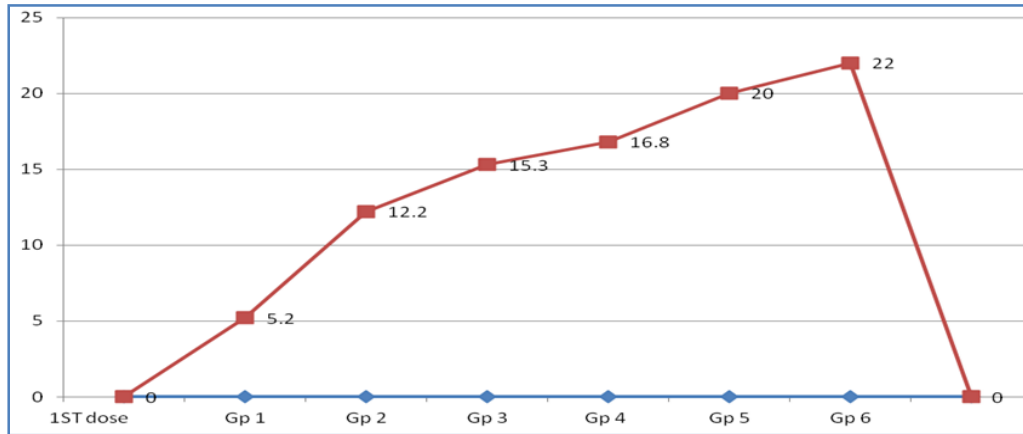


Table 12

1 <sup>ST</sup> dose	Hrs.	Mean
Gp 1	6,5,7,4,5,4,6,5,6,4	5.2
Gp 2	11,13,12,11,12,13,13,12,11,14	12.2
Gp 3	15,16,15,16,15,16,16,15,13,16	15.3
Gp 4	17,16,15,17,16,18,17,18,17,17	16.8
Gp 5	22,19,22,18,20,21,18,22,19,19	20
Gp 6	24,23,23,24,21,21,21,22,21,20	22

Table 13: Distribution of patients according to Requirement of 1<sup>st</sup> oral analgesic dose post-operatively

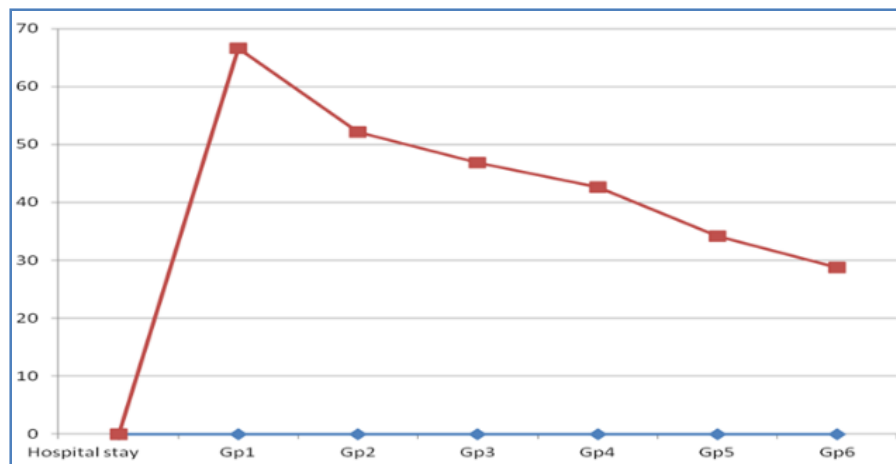
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**Table 13**

Hospital stay	Time(Hrs.)	Mean
Gp1	60,72,66,60,72,66,60,72,72,66	66.6
Gp2	48,60,54,48,54,48,60,54,48,48	52.2
Gp3	42,48,42,54,48,54,42,48,42,48	46.8
Gp4	36,42,36,48,54,36,42,36,54,42	42.6
Gp5	36,24,42,36,24,42,36,42,36,24	34.2
Gp6	24,36,36,24,24,24,36,24,36,24	28.8

**Table 14: Distribution of patients according to hospital stay (Hrs.) after tonsillectomy**



**Table 14**

Aldrete score	1hr	2hr	6hr	12hr	24hr
gp1	6	6	6	7	8
gp2	7	7	8	8	9
gp3	7	8	8	9	9
gp4	8	8	9	9	10
gp5	8	9	9	10	10
gp6	9	10	10	10	10

**Table 15: Distribution of patients (Average) according to Aldrete score**

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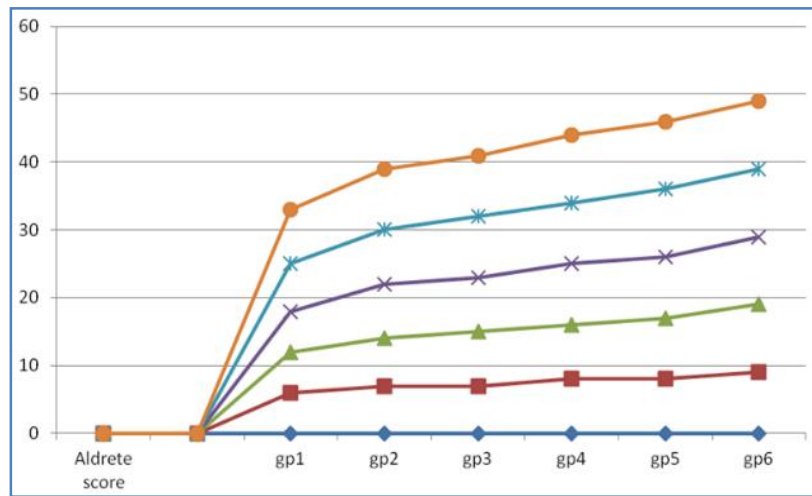


Table 15

OPS score	1hr	2hr	6hr	12 hr	24hr
gp1	7	7	6	6	5
gp2	6	4	4	3	3
gp3	5	4	3	3	2
gp4	3	3	2	0	0
gp5	3	2	0	0	0
gp6	2	0	0	0	0

Table 16: Distribution of the patients (Average) according to OPS Score

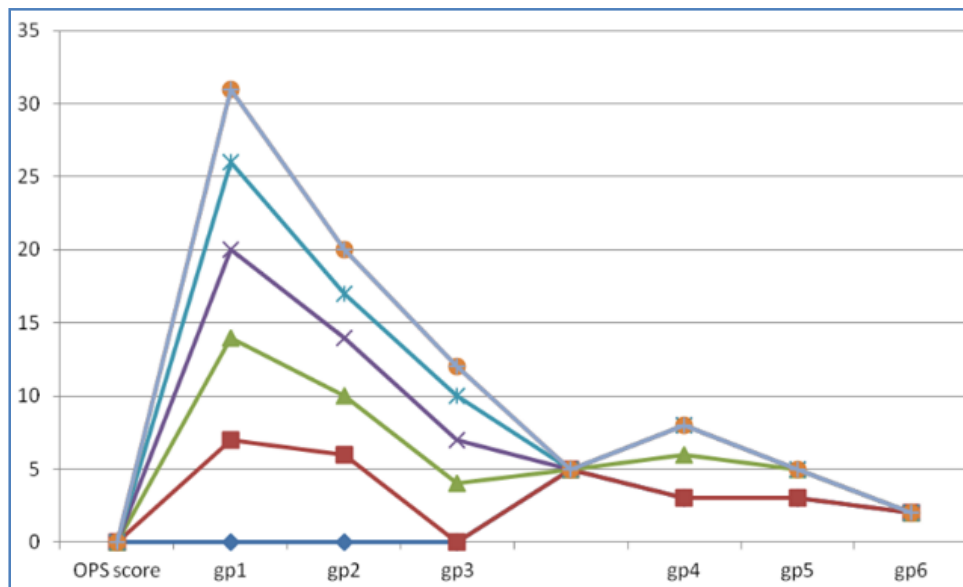


Table 16

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### **AUTHORS:**

1. Shamendra Kumar Meena
2. Rajkumar Jain
3. Vijay Kumar Meena
4. Ramraj Meena
5. Muniram Meena

### **PARTICULARS OF CONTRIBUTORS:**

1. Assistant Professor, Department of ENT, Govt. Medical College, Kota.
2. Associate Professor, Department of ENT, Govt. Medical College, Kota.
3. Associate Professor, Department of ENT, Govt. Medical College, Kota.

### **FINANCIAL OR OTHER**

**COMPETING INTERESTS:** None

4. Medical Officer, SWM.
5. Medical Officer, Udaipur.

### **NAME ADDRESS EMAIL ID OF THE CORRESPONDING AUTHOR:**

Dr. Shamendra Kumar Meena,  
KR-21, Civil Line,  
Nayapura, Kota-324001,  
Rajasthan.

E-mail: shamendra.meena82@gmail.com

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