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## RESEARCH ARTICLE

### A COMPARATIVE STUDY BETWEEN ROUTINE AND SELECTIVE USE OF NASOGASTRIC SUCTION IN CASES OF ELECTIVE SURGERY

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#### ABSTRACT

**Background:** Nasogastric intubation was in routine use after abdominal surgeries for the last many years. During the few years, better concepts of peri-operative fluid management, early postoperative mobilisation and good pain control have changed the whole scenario of postoperative course of patients on surgical floor. These changes have raised many questions on routine use of postoperative nasogastric decompression after small bowel anastomosis. **Methods:** A hospital based randomised comparative interventional study conducted at Surgery Department, SMS Medical College which included elective GI surgery from March 2013 to December 2014. **Results:** A total of 281 patients were included in the study, Almost 50% cases were allocated to each study group (group 1 - with routine NG tube and group 2 - selective NG tube). When we statistically compare the post operative clinical parameters in both groups, we find that the time taken for return of bowel sounds (3.08 vs 2.43 days), passage of flatus (3.30 vs 2.75 days) and motion (4.53 vs 3.85 days), mobilisation of patients (2.46 vs 1.16 days) and the duration of hospital stay (6.73 vs 5.89 days); all are significantly less in study group 2 in which the policy of selective insertion of NG tube was undertaken.

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## INTRODUCTION

Placement of nasogastric (NG) tube is a common surgical practice after bowel anastomosis. Postoperative nasogastric decompression is intended to drain secretions and gas from upper gastrointestinal tract, thereby reducing vomiting, aspiration of gastric contents, abdominal distension and discomfort. Some common problems with use of NG tube for the patient are discomfort, sore throat, nausea, pulmonary complications and increased swallowing. Nasogastric tube may cause local trauma at the time of intubation and damage to gastric mucosa. It also associated with high incidence of pulmonary infections and gastro oesophageal reflux. Removal of a large volume of gastric fluid may cause an imbalance of electrolytes in the blood. The aim of this study was to evaluate the advantages and disadvantages of nasogastric intubation in

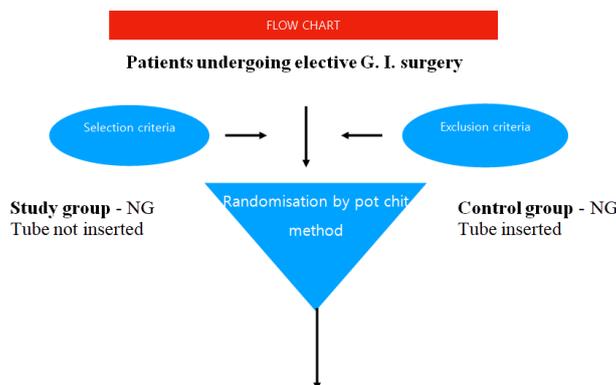
patients undergoing small gut anastomosis; to determine the current practice by surgeons in the use of postoperative nasogastric decompression and to perform a prospective study assessing its influence on patient comfort, duration until return of intestinal motility and complication rate.

## MATERIALS AND METHODS

This study was conducted in General Surgery department of SMS Medical College, Jaipur. This study was a hospital based randomised comparative interventional study. Patients who underwent "Elective GI surgery" in surgery department of SMS hospital from March 2013 to December 2014 were included in this study. Total cases were 281 patients. During the study period all the patients were operated in same surgical unit and were given uniform treatment. All age group were selected, Gastrointestinal surgeries like - resection anastomoses as well as bypass, cholecystectomy, partial gastrectomy, ileostomy closure, colostomy closure, right hemicolectomy were included in this study. Emergency surgeries, esophagectomy and total gastrectomy patients,

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Compare various subjective and objective aspects of the patient of both group

**Table 1. Unpleasant Post Operative Symptoms in Relation to Study Groups**

Symptoms	Study		Group		Total	
	Routine	NG Tube	Selective	NG Tube	NO.	%
	NO.	%	NO.	%		
Sore Throat	114	40.56	80	28.489	194	69.03
Nose Bleeding	31	11.03	2	0.7	33	11.74
Nausea	78	27.75	25	8.896	103	36.65
Cough	88	31.31	46	16.37	134	47.68

**Table 2. Postoperative Clinical Parameters in Relation to Study Groups**

Clinical	Study	Group	P Value*
Parameter	Routine NG Tube	Selective NG Tube	
Return of bowel sounds	3.0785+/-1.484	2.4397+/-1.746	<0.0001
Passage of flatus	3.3+/-1.674	2.759+/-1.85	<0.0001
Passage of motion	4.536+/-1.753	3.851+/-2.254	<0.0001
Time to mobilise	2.464+/-1.407	1.163+/-1.031	<0.0001
Duration of hospital stay	6.736+/-3.595	5.894+/-3.335	<0.0001

\*Unpaired t test

**Table 3. Comparison between the two study groups with Respect to the Unpleasant Post Operative Symptoms**

Symptom	Routine NG Tube insertion	Selective NG Tube insertion	P Value*
Sore throat	114	80	<0.0001
Nose bleeding	31	0	<0.0001
Nausea	78	25	<0.0001
Cough	88	46	<0.0001

\*Chi square test

re-operative cases, massive small intestinal resection etc. were excluded from this study.

## RESULTS

The present study done to assess and compare the treatment outcomes of routine and selective post operative nasogastric suction after elective GI surgery and to find out and compare the complications of routine and selective post operative use of nasogastric suction after elective GI surgery. The data obtained were analysed and the observations made were summarized. As we can see from the table no. 1, the incidence of unpleasant post operative symptoms was markedly raised in study group 1 in which routine use of nasogastric tube was done. As far as post operative unpleasant symptoms are concerned, on statistical analysis, they were found to be significantly less in study group 2 with a p value < 0.0001 for all the study parameters as is shown in the above table. Chi square test was employed for statistical analysis.

## DISCUSSION

The first use of a NG tube is said to date back to 1790 A.D. when John Hunter stretched the skin of an eel over a whale bone to deliver enteral feeding to a patient with dysphagia(1). The use of a tube to decompress the stomach was described much later in 1884 A.D. by Kussmaul and further by Levin in 1921 A.D. who designed a single lumen tube (2,3). A total 281 patients were included in this study and were randomised in two group. Record was kept of unpleasant symptoms. On analysis, it was found that incidence was quite high in the study group 1 as compared to study group 2. These result were in accordance with the Ocen W et al. On statistical analysis the difference was found to be very highly significant (p < 0.0001). The p value obtained was again in accordance with Ocen W et al and Baseem N Nathan et al. On comparison of other post operative clinical parameters, we found that the time taken to return to bowel sounds and passage of flatus and motion was significantly high in study group 1 as compared to study group 2 with p value <0.0001 for each of the parameters. Similarly, the time taken to mobilise the patients was also significantly higher in study group 1 (p <0.0001).

This might be attributed to the fact that a NG tube hinders free mobility of the patients and hence the patient himself as well as the treating physician is somewhat reluctant to mobilise the patient while the NG tube is in situ. All these parameters lead to a longer hospital stay in the study group 1 as compared to study group 2 which was also significantly higher (p value <0.0001). Some studies have found that nasogastric decompression is associated with a greater incidence of postoperative pulmonary complications, but our study and at least two other randomised trials (7,8) have failed to confirm this. The reason behind this variation in results may lie in the different definitions used for chest infection. In this study, nasogastric decompression did not provide added advantage after small bowel anastomosis.

Rather it was associated with higher frequency of throat infection, increased discomfort and prolonged hospital stay. Therefore, it may be more beneficial for the patients to avoid nasogastric intubation after anastomosis of small bowel.

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