

Original Research Article

Selective v/s Routine Nasogastric Decompression after Elective Laparotomy: A Prospective Randomised Controlled Study

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Abstract: Routine nasogastric tube insertion after elective laparotomy is widely practiced to prevent postoperative ileus and its subsequent complications like vomiting, aspiration, anastomotic leak, wound infection and abdominal wall dehiscence etc. However, nasogastric tubes themselves cause patient discomfort coupled with restrictions in mobility and pulmonary complications. The purpose of our study is to compare the effects and outcomes of routine versus selective nasogastric [NG] tube decompression following elective gastrointestinal [GI] surgeries. One hundred patients, undergoing laparotomy for routine gastrointestinal surgery in the period of one year in PBM HOSPITAL Bikaner, were randomized into two groups of 50 each – GROUP A without NG tube and GROUP B with NG tube postoperatively. Emergency GI surgeries and patients with electrolyte imbalance preoperatively were excluded from this study. 1. Shorter hospital stay in non NG tube group. 2. No significant statistical difference concerning return of bowel function, postoperative vomiting, pulmonary complications and anastomotic leakage. 3. Significant discomfort in NG tube group. Routine NG tube decompression after elective laparotomy causes significant complications and therefore, nasogastric decompression should be used selectively.

Keywords: nasogastric tube, ileus, dehiscence, gastrointestinal surgery

INTRODUCTION

Introduced by Abraham Louis Levin in 1921 and popularised by Wangenstein [1] in 1931, nasogastric suction is one of the routine procedures in gastrointestinal [GI] surgeries postoperatively.

For many years, intestinal decompression via nasogastric tube has been considered mandatory following GI surgeries so as to prevent postoperative ileus which cause abdominal distension leading to complications like anastomotic leak, wound infection, wound dehiscence and septicemia. This concept has occasionally been challenged through the years; however very few studies have been performed to clarify the effectiveness of the nasogastric tube [2].

The purpose of Ryles' tube insertion is to decompress stomach and intestine after surgery so as to reduce incidence of nausea and vomiting, aspiration, paralytic ileus and consequently, abdominal distension, anastomotic leakage, wound infection and abdominal wound dehiscence. Ryles' tube is also used preoperatively for intestinal decompression in patients of

obstruction, for gastric lavage in patients of gastric outlet obstruction to wash stomach prior to surgery.

Nasogastric tube (Ryles' tube) insertion has become one of the routine procedures postoperatively in gastrointestinal surgery [3]. However, its use comes with various complications like nausea, fever, sore throat, chest infection, pneumonia, nasal and pharyngeal injuries [4-6]. It is well recognized that nasogastric tubes cause significant patient discomfort. Multiple clinical trials, reviews and editorials have suggested that routine nasogastric decompression is unnecessary after elective laparotomy [7-9]. These studies have advocated selectively placing nasogastric tubes in only those patients who develop a need for gastrointestinal decompression in post operative period.

Despite its importance in certain surgical abdominal conditions such as perforation peritonitis, acute and subacute intestinal obstruction, various studies have shown that routine postoperative use of nasogastric suction after elective laparotomy is associated with higher rates of post operative

complications [10, 11]. These complications coupled with restrictions in mobility of patient and psychological discomfort has raised doubts about the benefit of routine nasogastric intubation after elective GI surgery [12, 13].

As of now, there is no standard consensus regarding postoperative nasogastric tube insertion after elective gastrointestinal surgeries. In our institute, it is routine practice to put nasogastric tube after all GI surgeries. The purpose of our study is to compare the effects and outcomes of routine versus selective nasogastric tube insertion following elective laparotomy for GI surgeries.

AIMS AND OBJECTIVES

The purpose of our study is to compare effects and outcomes of routine versus selective NG tube insertion in terms of:

- A] return of bowel functions,
- B] postoperative complications like ileus, vomiting, chest infection, anastomotic leakage, and
- C] duration of hospital stay following elective GI surgeries.

MATERIALS AND METHODS

This study was conducted in Deptt of gen. surgery, at PBM hospital, Bikaner.

One hundred patients planned for laparotomy for routine GI surgeries in a period of one year, were randomised into two groups (50 each):

- GROUP A- without NG tube, &
- GROUP B- with NG tube, postoperatively.

Patients with electrolyte imbalance and emergency GI surgeries were excluded.

Patients in both groups were observed for complications such as ileus, vomiting, chest infection & anastomotic leakage; duration of return of bowel functions and stay at hospital.

OBSERVATION

The incidence of nausea and vomiting was more in GROUP B (14%) as compared to GROUP A (4%). The development of paralytic ileus was more in patients without Ryles' tube (8%) as compared to those with Ryles' tube(2%). Also, the return of bowel function was earlier in patients with Ryles' tube as compared to those without it.

The incidence of chest infection was more in patients with Ryles' tube (36%) as compared to those without it(6%).In our study , it was observed that the development of anastomotic leakage was more in ryles' tube group(6%) as compared to no ryles' tube group(0%). Similarly, the duration of stay at hospital

was less in patients without Ryles' tube i.e GROUP A (13.86+/-4.63 days) as compared to those with Ryles' tube i.e GROUP B(15.00+/-5.6days).

DISCUSSION

Nasogastric decompression is widely used for decompression of intestinal tract after gastrointestinal surgery, but its routine use is now questionable. Many patients forget the major operation they underwent but remember the tube in their throat.

The aim of this study was to evaluate the role of nasogastric tube in elective abdominal surgery in reference to postoperative complications.

In this prospective study of 100 patients who undergone routine elective abdominal surgery was divided into two equal groups of 50 patients in each group – GROUP A (without Ryles' tube) and GROUP B (with Ryles' tube). Both groups were compared in terms of postoperative complications and duration of stay at hospital and results were noted.

In our study, the return of bowel function was on 3rd postoperative day in majority of patients in both groups which is comparable to study done by Gerber *et al* [14] who had compared 300 patients in each group. There is no stastically significant difference in bowel function. Study done by Clever *et al* [15] , Ying *et al* [16] and Michowitz [17] showed that there is no difference in return of bowel function in both nasogastric and non-nasogastric decompression group.

Paralytic ileus is normal physiologic response to operative trauma and frequently persist for 48-72 hours, although the nasogastric tube may remove the saliva and gastric content as well as swallowed air. In our study, total 5(5%) patients developed paralytic Ileus in their postoperative period out of them 4(8%) were among without nasogastric tube and 1(2%) was from with nasogastric tube with p value >0.05. The difference was found statistically significant.

Decreased frequency of vomiting is one of the reasons in the favour of nasogastric decompression. The handling of bowel and duration of surgery influence the incidence of vomiting in addition to type and amount of anaesthetic agent used. In our study, total of 9(9%) patients developed vomiting in post operative period out of which, 2(4%) belonged to without nasogastric tube and 7(14%) belonged to nasogastric group. This difference was found statistically significant. These results were compared to study done by Carrere *et al* [18].

Development of chest infection and pulmonary complications after major operative procedure is always a risk factor. Nasogastric intubation leads to cough and

expectoration and indirectly induces pulmonary infection. In our study, 3(6%) patients in non nasogastric tube group and 17(34%) patients in nasogastric tube group developed chest infection, the difference found to be statistically significant with p value <0.001. This result showed that there is higher frequency of postoperative respiratory complications with Ryles' tube, thus indicating that it is more beneficial for patients to avoid routine nasogastric decompression. This observation is comparable to study done by Akbaba *et al* [19] and Qureshi *et al* [20].

According to a report by Huerta *et al* [21], the incidence rate of pulmonary infection in those with nasogastric decompression after abdominal surgeries was 10 times higher than that in those without nasogastric decompression.

Anastomotic leakage from sites of anastomosis in postoperative period is major surgical complication. For many years, surgeon believe that intestinal decompression via Ryles' tube is protective in case of anastomotic leakage as it prevents paralytic ileus and abdominal distension. In our study, 3(3%) patients had anastomotic leakage and all of these were in nasogastric tube group. No patients in without Ryles' tube group developed anastomotic leakage and this result is found to be much similar to the study done by Daryaei *et al* [22].

With respect to duration of hospital stay, patients without Ryles' tube had earlier discharge with mean hospital stay of 13.86+/- 4.63 days, as compared to those with Ryles' tube with mean hospital stay of 15+/- 5.58 days. The result was comparable to the study done by Cunningham [23] who had significant shorter hospital stay in non nasogastric tube group.

CONCLUSION

Routine nasogastric decompression after elective laparotomy results in significantly increased incidence of chest infection, postoperative nausea and vomiting, longer stay at hospital and discomfort compared to non nasogastric tube group. Therefore, nasogastric decompression should be used in selective than routine nasogastric decompression after elective laparotomy. However, there should be no hesitation to insert nasogastric tube whenever surgeon feels that the patient is in paralytic ileus.

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