



ISSN: 0975-833X

Available online at <http://www.journalcra.com>

International Journal of Current Research  
Vol. 11, Issue, 05, pp.3705-3708, May, 2019

DOI: <https://doi.org/10.24941/ijcr.35470.05.2019>

INTERNATIONAL JOURNAL  
OF CURRENT RESEARCH

## RESEARCH ARTICLE

### EARLY ORAL INTAKE POST GASTRIC SURGERY

Dr. Yasser F. Zidan, Dr. Muthanna A. Al-Sharbaty, Dr. Ahmed Tariq and Dr. Ahmed Muhanna

Al - Jumhoori Teaching Hospital, Ninawah Health Directorate, Iraq

#### ARTICLE INFO

##### Article History:

Received 04<sup>th</sup> February, 2019  
Received in revised form  
24<sup>th</sup> March, 2019  
Accepted 05<sup>th</sup> April, 2019  
Published online 30<sup>th</sup> May, 2019

##### Key Words:

Postoperative Ilious,  
Sleeve gastrectomy,  
Enteral Feeding.

##### \*Corresponding author:

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Citation: Dr. Yasser F. Zidan, Dr. Muthanna A. Al-Sharbaty, Dr. Ahmed Tariq and Dr. Ahmed Muhanna, 2019. "Early oral intake Post Gastric Surgery", International Journal of Current Research, 11, (05), 3705-3708.

#### ABSTRACT

**Background:** After major gastrointestinal surgery the patient can start traditional late oral feeding (TOF) or start early oral feeding (EOF) which seems to be safe and beneficial with promising results. **Aim of study:** This study was performed to evaluate early oral feeding after upper gastro intestinal surgeries. **Patients and Method:** This prospective clinical case series study conducted in Mosul teaching Center for two years and 4 months in which 67 patients divided into 2 groups (36 start oral feeding early and 31 with late oral feeding) and results including hospital stay and return to normal life ,nausea, vomiting, tolerance of oral intake, fever and ileus were observed and the incidence of re admission and complications were recorded. **Results:** Both groups were comparable in terms of age, gender, with surgeon preference toward traditional late oral feeding after open surgery; there are significant difference in terms of NG tube removal ,start of oral feeding, ileus and hospital stay and passage of gas while no difference detected in terms of nausea, vomiting, tolerance of feeding and hospital re admission. **Conclusion:** Early gastric feeding is shown to be safe and decrease postoperative ileus with short hospital stay and can be applied safely for patients with upper gastrointestinal surgery.

#### INTRODUCTION

The presence of bowel sounds or flatus is the traditional indication to start oral intake post operatively safely (both in open and laparoscopic surgery) and the resolution of postoperative ileus can be defined by the passage of flatus which occurs within five days (Fanaie et al., 2005; Ekingen et al., 2005; Kehlet et al., 2006). The dysmotility that follows surgery resolved after 4-8 hours followed by stomach and colon (Bisgaard, 2002). The traditional trend is to use nasogastric tube and delays oral intake after laparotomy to be sure that the post operative ileus resolved completely ,but early post operative oral feeding and avoiding routine nasogastric tube has enhanced recovery from ileus (Bisgaard, 2002). Nowadays there are tow approaches to deal with patients post operatively depending on hospital protocols and surgeon's preference.

- NPO(Nothing Per Os ) policy that was used for many years and was thought to protect distal anastomosis and decrease nausea and vomiting ,but it is not clear for how long the delay of enteral feeding is useful (Lewis et al., 2001).
- Early enteral feeding that becomes popular in the last few years (Shrikhande, 2009) due to the possible benefit regarding wound healing and respiratory

infections, decrease hospital stay, mortality and reverses mucosal atrophy induced by

Starvation (Reynolds et al., 1997; Hu, 2011) in addition to increases collagen deposition and strength of anastomosis (Marik, 2002). Both polices were used in emergency and elective cases of upper and lower gastrointestinal resection also were used in cases of neoplasia in which patients suffer from malnourishment before surgery (Tian, 2005; Attar et al., 2012) ,with negative nitrogen balance ,poor appetite and eating habits (Attar et al., 2012; Kawamura et al., 2001) in addition to chemoradiation (neoadjuvant and post operative) which may worsen existing nutritional deficiency (Bauer, 2005; Miyata et al., 2012). Early enteral nutrition seems to be a beneficial and safe therapeutic alternative deal with post-operative management of patients undergoing lower and upper gastrointestinal (UGI) surgery (Attar et al., 2012; Kawamura et al., 2010). However, careful selection of patients is mandatory in order to obtain the greatest benefit of early oral feeding (EOF) in these patients (Attar et al., 2012; Bauer, 2005). So the role of EOF after UGI surgery needs to be more clarified by controlled randomized trials (Attar et al., 2012; Kawamura et al., 2010; Bauer, 2005; Miyata, 2012). It's well known that the routine use of NG tube prolonged ileus ,increased respiratory infection and patient discomfort with no benefit to protect anastomosis (Cheatham, 1995) and it seems to be no clear advantage to keeping patients nil by mouth after elective

gastrointestinal resection while early feeding may be of benefit, we should mention that most of these trials were small and more powered trial is required to confirm or refuse the new policy (Stephen, 2001; Andersen et al., 2006).

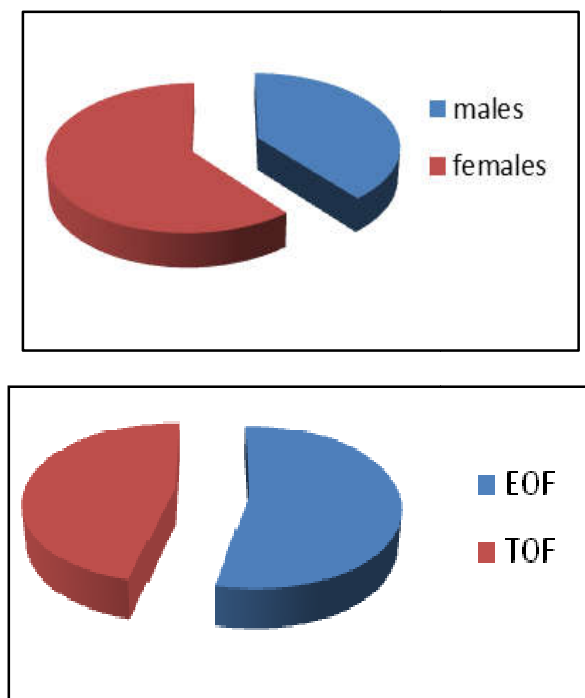
**Aim of study:** This study was performed to evaluate the policy of early oral feeding versus traditional delayed oral feeding mainly after upper gastro intestinal surgeries (even with resection and anastomosis).

## PATIENTS AND METHOD

This is a prospective clinical case series study conducted in Mosul teaching Center for two years and 4 months (March 2016 – July 2018) in which 67 patients divided into 2 groups (36 start oral feeding early and 31 with late oral feeding). Patients and surgeons who convinced with early oral feeding policy included in this study while traumatic injury with hemodynamic instability were excluded. Patient had the required surgical procedure according to guidelines followed by feeding (depends on the group) and close follow up. Water soluble contrast study performed for revision and cancer cases and the outcome measure recorded depends on nausea, vomiting, tolerance of oral intake, fever and ileus also the incidence of hospital stay and re admission with complications were recorded. The Statistical Analysis and P value calculated from t test and Chi Square by graph-pad used to detect statistical significant difference between two groups.

## RESULTS

This study involved 67 patients divided into 2 groups (36 EOF versus 31 TOF); they were 42 females and 25 males.



**Fig. 1. Pie chart of both modalities and gender**

Data analysis of the sample shows that they are comparable with no statistic significant between both groups in terms of age ,gender, social, but there is statistical significant difference in regards to type of surgery (open or laparoscope).

Different elective procedures performed and the indication of surgery with different post operative treatment modalities summarized in this table. Table (2). Type of operations and indication of surgery. Comparison between both groups performed depending on outcome parameters (nausea, vomiting, tolerance of oral intake, fever, ileus, hospital stay, incidence of re admission and complications and statistical analysis performed.

## DISCUSSION

Our study was conducted to assess the policy of early versus delayed oral feeding in terms of outcome parameters in patients undergoing elective gastrointestinal anastomosis depending on the fact that an early oral feeding after gut anastomosis improves wound healing as well as anastomotic strength and delayed oral feeding post-operatively does not seem to be reasonable (Ng, 2016). To avoid bias in this study we found that there are difference between gender, age, rural and urban patients in both methods, but this difference is not statistically significant. There is statistical significant difference between open and laparoscopic procedure and it's well known that bowel motility return to normal in laparoscopic surgery faster than open gastrointestinal surgery with resection and anastomosis (Atul Saxena, 2015) so this study shows that there is a bias in choosing the method of feeding with a trend for TOF after major open surgery and EOF after laparoscopic procedures. Weight loss and/or nutritional deficiency occurs with different diseases including tumours and obesity (Tian, 2005; Michael Via, 2012) and most of the cases in this study a part from 3 cases ( Nissen for GERD) had some sort of nutritional deficiency, but the total number of cases are relatively small with only 8 cases of tumor . Studies on the safety and feasibility of early oral feeding after gastric surgery are limited.

Suehiro et al. (2004) first reported accelerated rehabilitation with postoperative early oral intake in patients undergoing gastrectomy. In their study, surgical outcomes after gastrectomy of an early oral intake group (liquid diet within 48 hours) and a traditional group ('nil-by-mouth' until resolution of postoperative ileus) were retrospectively reviewed, and it was found that postoperative recovery was better in the early oral intake group, as indicated by earlier onset of flatus, and shorter fasting period and hospital stays which is similar to the results of this study. A large multicenter randomized trial conducted by Lassen and colleagues on upper gastrointestinal surgery comparing a routine of allowing early oral feeding with traditional nil-by mouth policy and late oral feeding after 5 days. They concluded that the early institution of an oral diet probably enhances postoperative recovery, as indicated by time to first flatus and shorter hospital stay, and that it has no adverse effect on major morbidities (Lassen, 2008) and there is a growing body of literature that consistently demonstrates that providing oral or tube feeding proximal to the anastomosis within 24 h postoperatively, is not only safe, but might be associated with significant benefits to the postoperative course. Early post operative feeding should therefore be adopted as a standard of care in oncology patients undergoing gastrointestinal resections (Emma, 2010). In this study there is significant difference in the time of NG tube removal ,tolerance to oral feeding ,passage of gas or defecation and short hospital stay in favour of early oral feeding and these results comparable with Lucha et al. (2005) and Zhou et al. (2006) while Han-Geurts et al. (2007) shows no difference

Table 1. Demographic distribution of the sample

Demographic features of the study	EOF N:36	TOF N:31	P value
Male 25	11	14	<i>p-value is 0.22</i>
Female 42	25	17	
Mean age (years)	34	34.4	<i>p-value is 0.87</i>
Range age (years) 19-61			
Rural 27	15	12	<i>p-value is 0.62</i>
Urban 40	21	19	
History of weight loss and possible nutritional deficiency 14/69	9	5	<i>p-value is 0.30</i>
Open 39	14	25	<i>p-value is 0.000594</i>
Laparoscopy 28	22	6	

Procedure	Etiology	EOF n:36	TOF n:31
Open sleeve gastrectomy	Morbid obesity	9	7
Laparoscopic sleeve gastrectomy	Morbid obesity	10	6
Mini gastric bypass & SASI	Morbid obesity	3	3
Total gastrectomy	Cancer	2	3
Partial gastrectomy	Tumors	3	5
Nissen fundoplication	GERD	2	1
Gastrojejunostomy	GOO	3	4
Revision after failed gastric plication	Bariatric and Metabolic	4	2

Parameter	Group	Number	Mean (SD)	T test	P value
Time of NGT removal (day) N:18	EOF	2	1.86 (1.03)	4.46	0.0001
	TOF	16	3.69 (1.20)		
Start of oral feeding (day)	EOF	37	1.24(0.43)	6.8	<0.0001
	TOF	32	3(1.48)		
Time of first gas passing and/or defecation	EOF	37	1.78(0.68)	4.35	<0.0001
	TOF	32	2.47(0.62)		
Post-operative hospital stays	EOF	37	2.08(1.08)	5.42	<0.0001
	TOF	32	3.63(1.26)		
Parameter	Group	Number	Percent	Chi square	P value
Nausea 56	EOF	32	57.1 %	1.48	0.22
	TOF	24	42.9 %		
Vomiting 18	EOF	11	61.1 %	0.54	0.45
	TOF	7	38.9 %		
Ileus 8	EOF	1	12.5 %	6.15	0.01
	TOF	7	87.5 %		
Tolerate oral feeding 52	EOF	29	55.8 %	0.39	0.53
	TOF	23	44.2 %		
Leakage	EOF	1	Radiological leak detected after failed gastric plication and no further interaction required.		
	TOF	0			
Hospital re admission 5	EOF	3	60%	0.08	0.76
	TOF	2	40%		
Wound infection 11	EOF	5	45.5%	0.35	0.55
	TOF	6	54.5		
Early return to work	EOF	31	6	24.9011	0.000001
	TOF	8	11		

between groups and Lassen et al. (2008) shows early passage of flatus with no difference in bowel motion. There is no difference in this study between both groups regarding nausea, vomiting and, wound infection and hospital re admission and these results are similar to Lucha et al. (2005) Zhou et al. (2006) while Schroeder et al. (1991) and Haydock et al. (1986) show less incidence of nausea and vomiting in EOF group and now a days as demonstrated by the standardized perioperative care procedure, preoperative bowel preparation, routine use of an abdominal drain, and nasogastric tube insertion are no longer considered indispensable for patients undergoing elective gastrectomy (Yoo et al., 2002) Intravenous fluid infusion restriction may also enhance bowel recovery and reduce postoperative complications, (Lobo, 2002), and effective antiemetic agents may promote the success of early oral nutrition after surgery (Bisgaard, 2002). From all these data from different trials and meta analysis it is now well known that early oral feeding is not only safe, but has less incidence of complication and this is approved and accepted in the guidelines (Arved Weimann, 2017; Yousaf, 2014).

## Conclusion

Early gastric feeding is shown to be safe and decrease postoperative ileus with short hospital stay and can be applied safely for patients with upper gastrointestinal surgery.

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