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Incidence and Factors Associated with Outcomes Of Early Oral Feeding Practices Among Patients Undergone Emergency Small Bowel Anastomosis In Western Uganda

Mohamed Abukar Nor
Kampala International University Western Campus
Maimuun Abdirahman Dayib
Ogbu Ngim
Kampala International University Western Campus
Ahmed Kiswezi
Kampala International University Western Campus
Hauwa Shitu Balarabe
Kampala International University Western Campus
Adam Hassan Mohamed
Kampala International University Western Campus
Mohamed Aweis Abubakar
Kampala International University Western Campus
Abdullahi Yusuf Ali
Kampala International University Western Campus
Daud Abdirahman Mohamed
Kampala International University Western Campus
Abdifatah Abdi Ali
Kampala International University Western Campus
Abukar Hussein Mohamed
Kampala International University Western Campus
Theoneste Hakizimana
Kampala International University Western Campus
Yusuf Mohamud Haile
Kampala International University Western Campus
Mugeni Micheal
Kampala International University Western Campus
Maslah Osman Ali
drmaslah10@gmail.com

Kampala International University Western Campus

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Abstract

Background

Traditionally, delayed oral feeding has been practiced after intestinal anastomosis to reduce complications, although evidence shows early feeding is safe and improves outcomes. Despite this, compliance with early feeding remains low, with many surgeons still favoring delayed practices. This study therefore aimed to assess the incidence, determinants, and outcomes of early oral feeding following emergency small bowel anastomosis in Western Uganda

Methods

This prospective study enrolled patients following emergency small bowel anastomosis at three tertiary Hospitals in western Uganda. Participants were followed until discharge to assess outcomes, including length of hospital stay, feeding tolerance, occurrence of anastomotic leakage, and duration of ileus.

Results

We enrolled 75 study participants, with 26.7% being < 18 years of age. Early oral feeding was offered to 55, accounting for 73.3%, with a 95% confidence interval of 62.7–82.7%. The odds of having early oral feeding were increased by over 3 times for those who were operated by a general surgeon or by a doctor who had been doing anastomosis for over 5 years ($P < 0.05$ for all). The rate of anastomotic leakage was significantly more in the patients that had delayed feeding compared to those who had early feeding (20.0% versus 1.8%, $P = 0.016$). Post-operative ileus was significantly lower in the group that had early feeding compared to those that had delayed (9 versus 12 hours, $P = 0.001$). There was no significant difference noted between the two groups regarding the toleration of feeds or the length of hospital stay.

Conclusion

Early oral feeding (EOF) following emergency small bowel anastomosis in Western Uganda is a safe method. Its use was significantly influenced by surgeon experience and specialty. Patients receiving EOF experienced a markedly lower rate of anastomotic leakage and postoperative ileus compared to those with delayed feeding, while feed toleration and overall hospital stay were similar between the groups. These findings support the adoption of EOF as a standard postoperative practice to enhance recovery and reduce complications.

Background

As common surgical technique for treating a variety of gastrointestinal ailments, including tumors, inflammatory diseases, and traumatic injuries, intestinal anastomosis is essential for reestablishing the

integrity of the digestive system (1). A study in Denmark between 2016 and 2019 reported that 370 patients underwent emergency bowel resection, of whom 84.6% received an anastomosis (2). Resection and anastomosis remain the standard of care for many gastrointestinal (GI) disorders; however, GI surgery carries a significantly higher risk of postoperative complications compared to other surgical specialties(3).One key factor influencing postoperative recovery is postoperative ileus (POI), which has historically justified the conventional “nothing by mouth” approach until bowel motility is reestablished (4).

Recent advances in gastrointestinal physiology, however, challenge this practice, Prolonged starvation can impair collagen deposition at the anastomotic site and slow healing, whereas early enteral feeding preserves mucosal integrity, promotes collagen synthesis, and enhances anastomotic strength (5). Early postoperative oral feeding is a very significant element of enhanced recovery following surgery protocols (ERAS) (3).

Emerging evidence supports the safety, feasibility, and efficacy of early oral feeding (EOF) following bowel surgery. EOF has been incorporated into Enhanced Recovery After Surgery (ERAS) protocols, which have demonstrated improved outcomes in developed countries (6). Despite this evidence, compliance with EOF remains limited. Many surgeons continue to delay feeding due to traditional practices, fear of complications such as anastomotic leakage, lack of institutional guidelines, and resource constraints for close postoperative monitoring (7).

In Uganda, data on EOF practices after small bowel anastomosis are scarce, and ERAS adoption remains low. Therefore, this study aimed to assess the incidence, associated factors, and outcomes of early oral feeding following emergency small bowel anastomosis in Western Uganda.

Methodology

This was a prospective hospital-based cohort study conducted to assess the incidence, Factors associated with outcomes of early oral feeding practices among patients undergone emergency small bowel anastomosis at Kampala International University Teaching Hospital (KIU-TH), Hoima Regional Referral Hospital (HRRH), and Fort Portal Regional Referral Hospital (FRRH), which are major referral centers in Western Uganda. All patients who underwent emergency small bowel anastomosis at the study hospitals during the study period were considered. The accessible population included those admitted to the surgical wards who met the eligibility criteria. Patients of any age or sex were eligible for inclusion, provided they gave informed consent.

Inclusion Criteria

All patients who presented to the study centres during the study period, after an emergency small bowel anastomosis and consented to participate in the study.

Exclusion Criteria

Patients who presented to the study center when operation had already been done from another health facility, had hemodynamic instability, had ileocolic anastomosis or had an anastomosis with a stoma were excluded.

Sample size

The sample size for this study was calculated using the online tool OpenEpi (https://www.openepi.com/SampleSize/SSCohort.htm), based on findings from Lee et al., 2014, who reported significantly higher complication rates in delayed feeding (47.5%) compared to early feeding (13.6%) following emergency gastrointestinal surgery, the sample size was computed.

Using these proportions, a power of 80%, and a 95% confidence level, the required sample size was calculated to be 68 participants using the Fleiss method. To account for potential non-response and enhance internal validity, an additional 10% was added, resulting in a final sample size of 75 participants.

Sampling technique

Consecutive enrolment for all the eligible participants was done till the sample was attained.

A pre-tested, structured questionnaire was used to capture participants' sociodemographic and clinical characteristics. Eligible patients who underwent small bowel anastomosis provided informed consent before data collection. Procedure notes were reviewed to determine the timing of oral feeding, classifying feeding as early if initiated within 24 hours postoperatively or once the patient was fully awake, and as delayed if feeding awaited passage of stool, flatus, or bowel sounds. When timing was unclear, the operating surgeon was consulted. Patients were followed until discharge or post-operative day 30. Outcomes assessed included feed toleration, duration of ileus, clinical anastomotic leakage, and length of hospital stay.

Data analysis

Data was analyzed using SPSS version 26. Statistical significance was set at $p \leq 0.05$ with 95% confidence intervals. Incidence of early oral feedings: A descriptive analysis was performed. Results were presented as percentages (%) and frequencies, with 95% confidence intervals. Factors associated with early oral feeding: Logistic regression was used to determine factors associated with being offered early oral feeding. At bivariate level, variables with $p < 0.2$ at bivariate level were included in multivariate logistic regression to identify independent predictors and results were reported as rate ratios (RR) with 95% confidence intervals. Outcomes of early oral feeding: For continuous outcomes (e.g., length of hospital stay and ileus duration), data was tested for normality using the Shapiro-Wilk test. If data were normally distributed, Independent Samples T-tests compared means between early and delayed feeding

groups. If not, Mann-Whitney U test was used. For categorical outcomes (e.g., anastomotic leakage and feed tolerance): Chi-square tests or Fisher's Exact test (if expected frequencies were low) were used to compare proportions between groups.

Ethical considerations and consent:

This study received the approval of Kampala International University's Western Campus Research and Ethics Committee with reference number of (KIU-REC-2025-824). this approval was given to the hospital administration at the study locations in order to secure the study's authorization. The Uganda National Council for Science and Technology registered the study.

Administrative approval was obtained from KIU-TH, HRRH and FRRH.

All methods were performed in accordance with the Uganda National Guidelines for Research Involving Humans as Research Participants (Uganda National Council for Science and Technology, UNCST

The children's legal guardians were asked for their informed consent before the child participated in the study. There was consent forms available in the native languages and English. We used the usual consent form provided by KIU's research and ethical committee. Forms of assent were signed by children who are older than seven years.

RESULT

In this study, we enrolled 75 study participants. Over half of the participants (65.3%) were young/middle aged adults, with 26.7% being < 18 years of age. Only 18.7% had a history of a chronic illness. Only 2.7% had spinal anesthesia, and these were strangulated hernia patients. Majority of the procedures (65.3%) were done by a surgeon, more specifically, a general surgeon. The two main indications for operation were intestinal obstruction and bowel perforation accounting for 36.0% and 49.3% respectively. The details are shown in Table 1 below.

Table 1
Baseline characteristics of study participants

Characteristic	Frequency	Percentage
Sex		
Male	40	53.3
Female	35	46.7
Age		
18–59 (Adult)	49	65.3
< 18(Children)	20	26.7
60+ (Elderly)	6	8.0
Hospital		
FRRH	35	46.7
HRRH	31	41.3
KIU-TH	9	12.0
Education		
None	24	32.0
Primary	13	17.3
Secondary	29	38.7
Tertiary	9	12.0
Occupation		
Un employed	4	5.3
Business	21	28.0
Farmer	31	41.3
Student	9	12.0
Formal employment	10	13.3
Religion		
Christian	61	81.3
Moslem	14	18.7
Chronic illness		

Characteristic	Frequency	Percentage
Sex		
No	61	81.3
Yes	14	18.7
Chronic illness type		
None	61	81.3
DM	6	8.0
HTN	8	10.7
Duration of surgery		
≤ 2hrs	55	73.3
> 2hrs	20	26.7
Anesthesia		
SA	2	2.7
GA	73	97.3
Cadre		
MO	2	2.7
SHO	24	32.0
Surgeon	49	65.3
Experience in anastomosing		
< 5 yrs	39	52.0
5 + yrs	36	48.0
Specialty		
General surgeon	49	65.3
Others	26	34.7
ASA class		
1	72	96.0
2	3	4.0
BMI		
Underweight	7	9.3

Characteristic	Frequency	Percentage
Sex		
Normal	65	86.7
Obese	3	4.0
Diagnosis		
IO	27	36.0
Perforation	37	49.3
Tumor	8	10.7
Mesenteric ischemia	3	4.0

FRRH=Fortportal Regional Referral Hospital, HRRH=Hoima Regional Referral Hospital, KIU-TH=Kampala International University Teaching Hospital, DM=Diabates Mellitus, HTN=Hypertension, SA=Spinal anesthesia, GA=General anesthesia, MO=medical officer, SHO=Senior house officer, IO=Intestinal obstruction, ASA=American society of anesthesia, BM=Body mass index.

Incidence of early oral feeding practice following emergency small bowel anastomosis.

Among the 75 participants enrolled, early oral feeding was offered to 55, accounting for 73.3%, with a 95% confidence interval of 62.7–82.7%. The rates of early oral feeding were 85.7% at FRRH, 61.3% at HRRH and 66.7% at KIU-TH, but the difference was not statistically significant (Fig. 3).

Factors associated with early oral feeding practice in patients who have undergone emergency small bowel anastomosis.

The variables considered for multivariate analysis ($P < 0.2$) were: sex, age, chronic illness specifically hypertension, duration of operation, year of experience doing anastomosis, speciality of operator and the American Society of Anesthesiologists physical status classification as detailed in Table 2 below.

Table 2
Bivariable analysis of factors associated with early oral feeding practice in patients who have undergone emergency small bowel anastomosis.

Characteristic	Delayed, N = 20	Early, N = 55	Bivariable analysis		
			cOR	95% CI	P value
Sex					
Male	14(70.0)	26(47.3)	Ref		
Female	6(30.0)	29(52.7)	2.603	0.872–7.765	**0.086**
Age					
18–59 (Adult)	10(50.0)	39(70.9)	Ref		
< 18(Children)	8(40.0)	12(21.8)	0.385	0.124–1.194	0.098
60+ (Elderly)	2(10.0)	4(7.3)	0.513	0.082–3.210	0.475
Hospital					
FRRH	5(25.0)	30(54.5)	Ref		
HRRH	12(60.0)	19(34.5)	0.264	0.080–1.868	0.228
KIU-TH	3(15.0)	6(10.9)	0.333	0.062–1.786	0.200
Education					
None	7(35.0)	17(30.9)	0.694	0.115–4.203	0.691
Primary	4(20.0)	9(16.4)	0.643	0.090–4.581	0.659
Secondary	7(35.0)	22(40.0)	0.898	0.150–5.361	0.906
Tertiary	2(10.0)	7(12.7)	Ref		
Occupation					
Un employed	2(10.0)	2(3.6)	0.250	0.021–3.041	0.277
Business	9(45.0)	12(21.8)	0.333	0.057–1.965	0.225
Farmer	3(15.0)	28(50.9)	2.333	0.331–16.468	0.395
Student	4(20.0)	5(9.1)	0.312	0.041–2.384	0.262
Formal employment	2(10.0)	8(14.5)	Ref		
Chronic illness					
No	14(70.0)	47(85.5)	Ref		
Yes	6(30.0)	8(14.5)	0.397	0.118–1.339	**0.136**

Characteristic	Delayed, N = 20	Early, N = 55	Bivariable analysis		
			cOR	95% CI	P value
Sex					
Chronic illness type					
None	14(70.0)	47(85.5)	Ref		
DM	2(10.0)	4(7.3)	0.596	0.099–3.601	0.573
HTN	4(20.0)	4(7.3)	0.298	0.066–1.347	**0.116**
Duration of surgery					
≤ 2hrs	17(85.0)	38(69.1)	Ref		
> 2hrs	3(15.0)	17(30.9)	2.535	0.655–9.819	**0.178**
Anesthesia					
SA	1(5.0)	1(1.8)	Ref		
GA	19(95.0)	54(98.2)	2.842	0.169–47.714	0.468
Cadre					
MO	1(5.0)	1(1.8)	Ref		
SHO	11(55.0)	13(23.6)	1.182	0.066–21.175	0.910
Surgeon	8(40.0)	41(74.5)	5.125	0.290-90.703	0.265
Experience in anastomosing					
< 5 yrs	19(95.0)	20(36.4)	Ref		
5 + yrs	1(5.0)	35(63.6)	3.250	1.135–7.370	**0.001**
Specialty					
General surgeon	9(45.0)	40(72.7)	3.259	1.127–9.428	**0.029**
Others	11(55.0)	15(27.3)	Ref		
ASA class					
1	18(90.0)	54(98.2)	Ref		
2	2(10.0)	1(1.8)	0.167	0.014–1.949	**0.153**
BMI					
Normal	18(90.0)	47(85.5)	Ref		
Obese	1(5.0)	2(3.6)	0.766	0.065–8.976	0.832

Characteristic	Delayed, N = 20	Early, N = 55	Bivariable analysis		
			cOR	95% CI	P value
Sex					
Underweight	1(5.0)	6(10.9)	2.298	0.258–20.442	0.456
Diagnosis					
IO	6(30.0)	21(38.2)	Ref		
Perforation	10(50.0)	27(49.1)	0.771	0.241–2.465	0.662
Tumor	2(10.0)	6(10.9)	0.857	0.136–5.395	0.870
Mesenteric ischemia	2(10.0)	1(1.8)	0.143	0.011–1.859	0.237

cOR= Crude odds ratio, CI= Confidence interval, FRRH=Fortportal Regional Referral Hospital, HRRH=Hoima Regional Referral Hospital, KIU-TH=Kampala International University Teaching Hospital, DM=Diabates Mellitus, HTN=Hypertension, SA=Spinal anesthesia, GA=General anesthesia, MO=medical officer, SHO=Senior house officer, IO=Intestinal obstruction, ASA=American society of anesthesia, BM=Body mass index.

In the multivariable analysis, the independent factors associated with early oral feeding practice in patients who have undergone emergency small bowel anastomosis were: being operated by a surgeon (aOR = 3.251, CI = 1.046–10.101, P = 0.042) or a doctor who has an experience of more than 5 years doing bowel anastomosis (aOR = 3.023, CI = 1.345–6.753, P = 0.003). The odds of having early oral feeding were increased by over 3 times for those who were operated by a general surgeon or by a doctor who had been doing anastomosis for over 5 years. The details are shown in Fig. 3 below.

Table 3
Multivariable analysis of factors associated with early oral feeding practice in patients who have undergone emergency small bowel anastomosis.

Characteristic	Bivariable analysis			Multivariable analysis		
	cOR	95% CI	P value	aOR	95% CI	P value
Sex						
Male	Ref					
Female	2.603	0.872–7.765	0.086	2.344	0.715–7.679	0.160
Age						
18–59 (Adult)	Ref					
< 18(Children)	0.385	0.124–1.194	0.098	0.765	0.193–3.032	0.703
60+ (Elderly)	0.513	0.082–3.210	0.475	1.285	0.178–9.299	0.804
Chronic illness						
No	Ref					
Yes	0.397	0.118–1.339	0.136	0.421	0.119–1.486	0.179
Chronic illness type						
None	Ref					
DM	0.596	0.099–3.601	0.573	0.555	0.091–3.376	0.523
HTN	0.298	0.066–1.347	0.116	0.332	0.070–1.568	0.164
Duration of surgery						
≤ 2hrs	Ref					
> 2hrs	2.535	0.655–9.819	0.178	3.966	0.848–18.534	0.080
Experience in anastomosing						
< 5 yrs	Ref					
5 + yrs	**3.250**	**1.135–7.370**	**0.001**	**3.023**	**1.345–6.753**	**0.003**
Specialty						
General surgeon	**3.259**	**1.127–9.428**	**0.029**	**3.251**	**1.046–10.101**	**0.042**
Others	Ref					
ASA class						
1	Ref					

Characteristic	Bivariable analysis			Multivariable analysis		
	cOR	95% CI	P value	aOR	95% CI	P value
Sex						
2	0.167	0.014–1.949	0.153	0.191	0.015–2.394	0.199

cOR= Crude odds ratio, aOR= adjusted odds ratio, CI= Confidence interval

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Outcomes of early oral feeding practice of emergency small bowel anastomosis.

The rate of anastomotic leakage was significantly more in the patients that had delayed feeding compared to those who had early feeding (20.0% versus 1.8%, P = 0.016). The median duration of post operative ileus was significantly lower in the group that had early feeding compared to those that had delayed (9 versus 12 hours, P = 0.001). There was no significant difference noted between the two groups regarding the toleration of feeds or the length of hospital stay as detailed in Table 4 below.

Table 4
Outcomes of early oral feeding practice of emergency small bowel anastomosis.

Outcome	Overall (n = 75)	Early (N = 55)	Delayed (N = 20)	P value
Feeds tolerated				0.790
No	3(4.0)	2(3.6)	1(5.0)	
Yes	72(96.0)	53(96.4)	19(95.0)	
Anastomotic leakage				**0.016**
No	70(93.3)	54(98.2)	16(80.0)	
Yes	5(6.7)	1(1.8)	4(20.0)	
Continuous variables				
LOS (days)	6.0(5.0–7.0)	7.0(6.0–7.0)	6.0(5.0-9.8)	0.695
Ileus duration (hrs)	9.0(8.0–10.0)	9.0(8.0–10.0)	12.0(11.0–13.0)	**0.001**

LOS=Length of hospital stay

DISCUSSION, CONCLUSION, AND RECOMMENDATIONS

Overview.

This study was aimed at determining the incidence, associated factors and outcomes of early oral feeding practices following emergency small bowel anastomosis in Uganda. The interpretation of our findings, what they add to the current practice and comparisons with previously published data is detailed in the following subsections stratified according to the specific objectives.

Incidence of early oral feeding practice following emergency small bowel anastomosis.

Among the 75 participants enrolled, early oral feeding was offered to 55, accounting for 73.3%. This is relatively high; however, some participant characteristics like age group, surgeons' expertise, among others could explain our results. For example, our study excluded all patients who were hemodynamically unstable. Unstable patients are more likely to be considered high risk for anastomosis leakage, resulting in avoiding early feeding. The fact that we excluded these, could have resulted in an overall higher rate of early feeding. Also, the fact that among patients that were enrolled a few had chronic illnesses (HTN and DM) 14.6%, with only two patients having ASA 2, could have contribute to the high rate of early feeding. This is because, patients with chronic illness and those with a high ASA score may be considered to have high risk of leakage and hence early feeding avoided.

The fact that majority of the procedure (65.3%) were done by general surgeons, could also have contributed to the high rate of early feeding. A study conducted by (8) revealed that, specialized training can lead to improved confidence and ability to follow the recommendations and current guidelines in the care of patients.

Contrary to our findings, to find out the current situation and assess the viability of early enteral nutrition, young children with bowel anastomosis in mainland China, a prospective study was carried out. According to the study, 17.9% of newborns and infants with bowel anastomosis had early oral feeding (EOF) overall (9). Similarly, a prospective study in China to assess the effectiveness and safety of early enteral nutrition in comparison to DOF (delayed oral feeding) reported that, infants with bowel anastomosis had a cumulative EOF rate of 20.3% (9).

The reported incidence of EEF implementation remains low in the regions studied, reflecting persistent adherence to traditional delayed feeding(10), explicitly noted that delayed feeding was the standard practice at Kenyatta National Hospital (KNH), necessitating their study to generate local evidence for change. Similarly, (11) their comparative trial because early feeding was *not* the routine practice at Ain Shams University Hospital or Mansoura International Hospital, indicating its limited adoption despite existing global literature. Both studies imply that EEF was an intervention applied systematically only within the research context, not as standard care, during their respective study periods.

This suggests a significant lag between evidence generation (predominantly from Western/Asian studies) and widespread clinical implementation in African surgical settings. This incidence was lower than in our study and it can be explained by the fact that the studies were limited to children who are less

likely to be initiated on oral feeding because they are often sicker and the surgeons tend to have fear for anastomotic leaks in those cases, which may result in having opting for delayed feeding.

Factors associated with early oral feeding practice in patients who have undergone emergency small bowel anastomosis.

In the multivariable analysis, the independent factors associated with early oral feeding practice in patients who had undergone emergency small bowel anastomosis were: being operated by a surgeon or a doctor who had an experience of more than 5 years doing bowel anastomosis.

In this study, the odds of having early oral feeding were increased by over 3 times for those who were operated by a doctor who had been doing anastomosis for over 5 years. Doctors with more experience doing bowel anastomosis are more likely to have more confidence in their decision making (anastomosis versus stoma), hence ensuring that anastomosis is only done in those whom they will not worry about the possibility of leakage. This could increase the confidence to initiate early feeding.

In this study, the odds of having early oral feeding were increased by over 3 times for those who were operated by a general surgeon. General surgeons, have had specialized training which increases the ability in decision making (anastomosis versus stoma), but also increases their confidence in the technique, resulting in less worry about leakage when anastomosis is made (8). Also, during residence training, surgeons tend to do a lot of reading about the new recommendations such as early feeding, which could increase their confidence in recommending them for their patients.

The adoption of early enteral feeding (EEF) after small bowel anastomosis is influenced by deeply ingrained surgical traditions, regional resource availability, and concerns about anastomotic safety. In Kenya (10). surgeons primarily practiced delayed feeding due to fears that Western study findings might not apply to local populations with "different genetic makeup." This highlights how cultural perceptions and extrapolation concerns can hinder evidence-based practice changes, even when supported by international literature. Conversely, the Egyptian study(11),focused more on standardizing protocols within a tertiary setting, reflecting efforts to implement emerging evidence despite prevailing traditional norms ("nil by mouth until bowel sounds return"). Both studies identified surgeon skepticism regarding mechanical stress on fresh anastomoses as a key barrier, underscoring the need for localized safety data to overcome resistance.

There are no studies that can be compared to this study since majority of the studies on the subject have been randomized controlled trials, comparing the two timings of feeding and did not assess the factors associated with the early initiation of feeding.

Outcomes of early oral feeding practice of emergency small bowel anastomosis.

The rate of anastomotic leakage was significantly more in the patients that had delayed feeding compared to those who had early feeding. The median duration of post-operative ileus was significantly

lower in the group that had early feeding compared to those that had delayed. There was no significant difference noted between the two groups regarding the toleration of feeds or the length of hospital stay.

The possible explanation for having a higher rate of anastomotic leakage in the patients that received delayed initiation of feeding could be because this was an observational study where the surgeon determined the feeding method (early or delayed). It is possible that delayed feeding could have been left to the patients who were very sick and at a higher risk of anastomotic leakage. However, starving a patient lowers the collagen levels in the scars, lowering the healing process, while introducing feeds early prevents the atrophy of the mucosa as well as increasing deposition of collagen on the anastomosis and increasing strength (5),hence minimal risk of leaking. However, this being an observational study, conclusion about weather early feeding reduces risk of anastomosis leakage, or if delayed feeding increases the risk of leakage can not be confidently made.

The toleration of early feeding was good in our study and it can be explained by the fact that there was a very strict protocol of feeding patients after initiation, where we started with very small volumes of sips, where after gradual increase was considered. Also, the fact that we excluded the patients who were hemodynamically unstable, reduced the chances of having a big number of patients that could have failed to tolerate feeds.

In order to compare the surgical results of nutritional support, RCTs comparing the results of early and conventional postoperative feeding were found by searching databases and a meta-analysis done. The study found that patients who received early postoperative feeding had statistically significant (45%) lower relative odds of total postoperative complications which was in agreement with our findings. Also, in agreement with our findings, the timing of feeding had no effect on length of hospital stay. Though, the direction of clinical outcomes favored early feeding, it had no effect on leakage and time to passing flatus or stool (duration of ileus) which was contrary to our findings (12). The fact that this meta-analysis included only randomised controlled trials, while our study was an observation study in which the surgeon decided the feeding method, could have resulted in allocation bias, with patients more likely to have complications left to have delayed feeding. This can be interpreted that delaying the feeding does not alter the risk of complications.

In order to assess the safety and tolerability of early enteral nutrition following gastrointestinal procedures in terms of postoperative complications and length of hospitalization, a prospective observational study was carried out in India. Contrary to our findings, patients who received early enteral feeding had a considerably reduced mean hospital stay than controls, and the difference in findings can be attributed to differences in study design, which affected the allocation of patients. However, in agreement with our findings, early enteral feeding group experienced less complications (11.4%) than the late enteral feeding group (25.7%) (13).

In the United Kingdom, group A experienced considerably shorter hospital stays (3.38 vs. 5.0 days) and analgesia durations (1.9 vs. 4.01 days). Additionally, the study found that Group A had lower rates of distended abdomen (7.7% vs. 15.6%), emesis (11.5% vs. 15.6%), wound infection (3.8% vs. 12.5%), and

needing another admission (0% vs. 3.1%), although these differences were not statistically significant (14).This study was conducted only in children and only included planned surgeries as opposed to our study that was limited to emergency cases making, it different from our study hance incomparable.

Strength of the study

This was the first multicentre study that assessed outcomes of early oral feeding practices following emergency small bowel anastomosis in Uganda to the best of our knowledge. Also, it was the first study that assessed the extent to which early oral feeding is practiced as well as the factors associated with the practice, since majority of the studies published were randomized controlled trials.

Study Limitations

This was not a randomized controlled study; the decision on the timing of feeding depended solely on the surgeon, which could have introduced allocation bias, affecting the findings regarding the outcomes.

Conclusion

Though there was a relatively high incidence of early oral feeding practice (7 of every 10 patients), it was quite lower than the expected where each patient should receive early oral feeding.

The odds of having early oral feeding were increased for those who were operated by a general surgeon or by a doctor with more experience in anastomosis.

Though anastomotic leakage and duration of ileus were improved by early feeding, the tolerance of feeds and length of hospital stay were not significantly affected by timing of feeding.

Recommendations

Through continuous medical education, all doctors that do bowel anastomosis should be taught that all patients should be offered early oral feeding even following bowel anastomosis in an emergency setting.

Empasis of the education should focus on the non-specialized doctors.

To obtain a picture of outcomes devoid of allocation bias, a randomized controlled trial should be done to assess the outcomes between the two timings of feeding in our setting.

Abbreviations

DOF
Delayed oral feeding

EOF
Early oral feeding
IA
Intestinal anastomosis
IREC
Institution Research Ethic Committee
KIU
Kampala International University
WHO
World Health Organization
ERAS
Enhanced Recovery After Surgery

Declarations

Ethical considerations:

Ethics approval and consent to participate: Relevant guidelines and regulations were followed in conducting of the study. Ethical clearance was obtained from the Research and Ethics committee of Kampala International University's Western Campus (**KIU-REC** reference number **KIU-REC-2025-824,** Written informed consent was obtained from each participant or their legally authorized representatives as appropriate before recruitment into the study and Forms of assent were signed by children who are older than seven years.

Consent for publication: Not applicable

Conflicts of Interest:

The researchers involved in this study declared no financial or non-financial conflicts of interest that could influence the design, conduct, or reporting of this research.

Funding:

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Clinical trial number: Not Applicable

Availability of data and materials

The datasets generated and/or analyzed during the current study are not publicly available but are available from the corresponding author (MAN) on reasonable request. Requests for access to the data should be directed to:**aayaha10@hotmail.com**

Authors Contribution:

Author's contributions: MAN was the principal investigator, conceived and designed the study, collected data, analysed data, and wrote the first draft of the manuscript. **JM, MAD** and **MOA**participated in data analysis, discussion of results and revised the manuscript. **ON** and **MM** supervised the work and revised the manuscript, **AK, HSB, AHM, MAA, AYA, DAM, AAA, AHM, YMH,** participated in data collection, revised the manuscript and all authors approved the final paper to submit the study to BMC discover public health.

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Figures

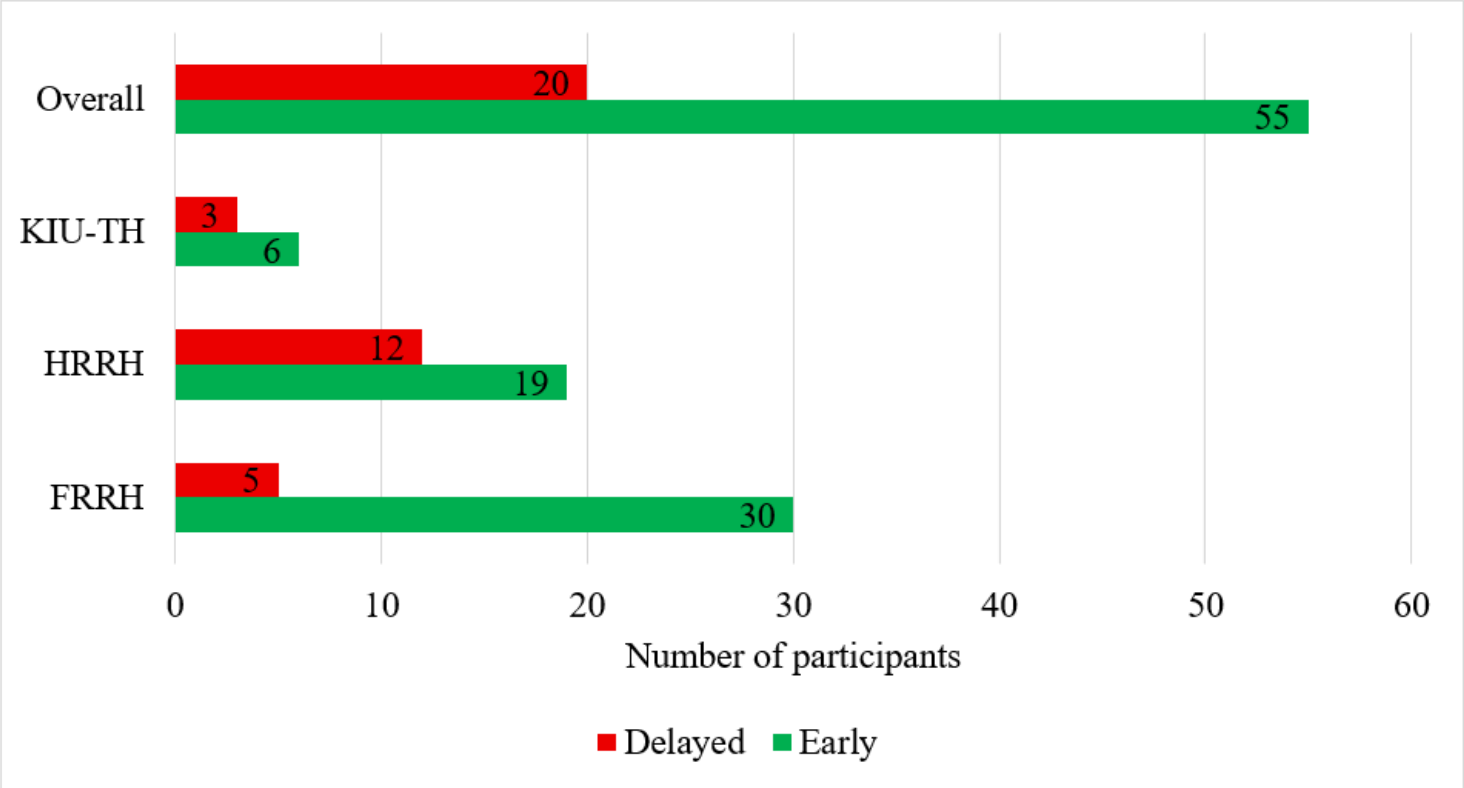


Figure 1

Incidence of early oral feeding practice following emergency small bowel anastomosis.

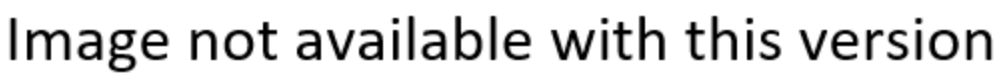


Figure 2

Legend not included with this version