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Original Article

Comparison of Two Hours Fasting with Conventional Eight Hours Fasting Before Undergoing Upper Gastrointestinal Endoscopy

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ABSTRACT

1. Endoscopy is performed in routine to diagnose gastrointestinal diseases. Usually, a patient has fast for 8 hours fast before undergoing endoscopy. But it has also been observed that 2 hours fast can have equal efficacy in clearing upper gastrointestinal tract for diagnosis of gastrointestinal disease and equivalent comfort for endoscopy. **Objective:** To compare the outcome of upper gastrointestinal endoscopy with 2 hours fasting versus 8 hours fasting (conventional method). **Methods:** Ninety cases (45 in each group) were enrolled and divided in two groups. Patients randomized to group A were asked to fast for 2 hours before undergoing endoscopy. In group B, patients underwent endoscopy after 8 hours fast. Just before procedure, patients were inquired if they felt hunger, thirst, weakness, anxiety, nausea or discomfort. The gastroenterologist also observed the patient for nausea or regurgitation at intubation, liquid or food stasis, and risk of aspiration during procedure. The quality of endoscopy was noted as gastric mucosa visibility and overall endoscopy quality rate was noted to. An overall endoscopy quality score >5 was deemed as good quality. **Results:** In the 2 hours fast group, no patient had hunger, thirst, or weakness before undergoing procedure while 27 (60.0%) patients had anxiety, 13 (28.9%) patients had nausea and 5 (11.1%) patients felt discomfort. In the 8 hours fast group, 5 (11.1%) patients had hunger, but no patient had thirst or weakness before undergoing procedure while 18 (40.0%) patients had anxiety, 13 (28.9%) patients had nausea and 9 (20.0%) patients were feeling discomfort. In 2 hours, fast group, all (100%) patients had comfort with endoscopy. Similarly, in 8 hours fast group, all (100%) patients had comfort with endoscopy. In the 2 hours fast group, gastroenterologist observed nausea in 32 (71.1%) patients, and liquid stasis in 13 (28.9%) patients, while regurgitation at intubation, food stasis, and risk of aspiration were not observed during endoscopy. In the 8 hours fast group, the gastroenterologist observed nausea in 45 (100%) patients, while liquid stasis, regurgitation at intubation, food stasis, and risk of aspiration were not observed during endoscopy. The difference in both groups was highly significant ($p<0.05$). The overall endoscopy quality rate was 7.47±0.51 in 2 hours fast group and 7.78±0.60 in 8 hours fast group ($p<0.05$). In both groups, all patients had score 7 or above and hence, a good quality of endoscopy. **Conclusion:** 2 hours fast prior to endoscopy achieved results equivalent to those achieved after 8 hours fasting. So, as a day case procedure, endoscopy can be performed within same day after 2 hours fast, instead of

INTRODUCTION

Gastrointestinal disorders cover a wide range of medical problems, from dyspepsia to inflammatory bowel disease and cancer. The most common approach for diagnosing these conditions is by doing an endoscopy [1,2]. Upper gastrointestinal endoscopy is a significant clinical service that is in high demand all over the world. Its use relates to a variety of epidemiological concerns across the world, with cancer screening and surveillance being top priorities. Despite its excellent neoplasia detection accuracy, upper gastrointestinal endoscopy is still a highly operator-

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dependent technique with a significant risk of missed disease [3]. According to data from the United States, the usage of endoscopy grew by more than 50% in the first decade of the new century, a trend that continues today. For example, 6.9 million endoscopies were expected to be done in the United States in 2009, resulting in $12.3 billion expenditure (in an outpatient setting only). According to more recent data from the United Kingdom, approximately 1.2 million endoscopies (both therapeutic and diagnostic) were done in 2016 [4,5]. An endoscopy's value varies according on to the epidemiological challenges across the world. Endoscopy has not only proven itself as a viable alternative to X-ray photofluorography as a first-line screening method in high-risk areas for stomach cancer, but it is also steadily replacing it [6]. In contrast to colonoscopy, where numerous performance measures (inspection duration, adenoma detection rate, and interval cancers, among others) have been established during the previous decade, identifying upper gastrointestinal performance measures poses a significant difficulty [7]. Rationale of this study is to compare the comfort, safety and quality of upper gastrointestinal endoscopy with 2 hours fasting versus 8 hours fasting (conventional method). It was observed that endoscopy comfort was more with 2 hours fast than with a conventional method while the safety and quality of endoscopy are similar for both methods. However, not much data is available in this regard and no such study has been done in Pakistan before. So we want to conduct this study in the local settings to obtain results for are setup, in order to be able to recommend the more appropriate method with least complications an improved outcome of endoscopy. This, in future, will help us in implementation of a better prognostic and diagnostic protocol in the local setting for the diagnosis of gastrointestinal diseases.

METHODS

This randomized controlled (experimental) trial was conducted at Department of Gastroenterology, Sir Ganga Ram Hospital Lahore from 1st April 2021 to 31st July 2021. A total of 90 patients (45 in each group) were enrolled and divided in two groups. Patients randomized to group A were asked to fast for 2 hour before undergoing endoscopy. In group B, patients underwent endoscopy after 8 hours fast. Patients of age 16-75years of both genders undergoing upper gastrointestinal endoscopy were included. Patients with nasoenteral feeding tube; unstable clinical condition (shock, coma); BMI>35kg/m^2, Active gastrointestinal bleeding and gastroesophageal surgery were excluded. The demographics like name, age, gender, BMI, indication for endoscopy, duration of symptoms, h/o diabetes (BSR>200mg/dl), were noted. Patients were advised complete fast without any fluid or solid food intake through mouth. Just before the procedure, patients were asked if they experience hunger, thirst, weakness, anxiety, nausea or discomfort. The gastroenterologist also observed the patient for nausea or regurgitation at intubation, liquid or food stasis, and risk of aspiration during procedure. The quality of endoscopy was noted as gastric mucosa visibility and overall endoscopy quality rate was noted to. An overall endoscopy quality score >5 was deemed as good quality. The data was entered and analyzed through SPSS-20.

RESULTS

The mean age of patients in 2 hours fast group was 39.24±5.29 years, while in 8 hours fast group, the mean age of patients was 55.89±14.05 years. In 2 hours fast group, there were 31 (68.9%) male patients and 14 (31.1%) female patients. In 8 hours fast group, there were 24 (53.3%) male patients and 21 (46.7%) female patients. The mean BMI of patients in 2 hours fast group was 24.09±2.79 kg/m^2, while in 8 hours fast group, the mean BMI of patients was 25.11±1.89 kg/m^2. In 2 hours fast group, there were no diabetic patients while all (100%) were non-diabetic patients. In 8 hours fast group, there were 9 (20.0%) diabetic patients while 36 (80.0%) were non-diabetic patients. In 2 hours fast group, 13 (28.9%) patients had ADP, 27 (60.0%) patients had GERD, 0 (0.0%) patients had hematemesis while 5 (11.1%) patients had complaint of unnecessary vomiting. In 8 hours fast group, 5 (11.1%) patients had ADP, 27 (60.0%) patients had GERD, 5 (11.1%) patients had hematemesis while 8 (17.8%) patients had complaint of unnecessary vomiting. The mean duration of symptoms in 2 hours fast group was 55.07±38.33 months, while in 8 hours fast group, the mean duration of symptoms was 35.96±39.10 months (Table 1). In the 2 hour fast group, out of 45 cases, no patient experienced hunger, thirst, or weakness before undergoing procedure while 27 (60.0%) patients had anxiety, 13 (28.9%) patients had nausea and 5 (11.1%) patients were feeling discomfort. In 8 hour fast groups, out of 45 cases, 5 (11.1%) patients had hunger, but no patient had thirst or weakness before undergoing procedure while 18 (40.0%) patients had anxiety, 13 (28.9%) patients had nausea and 9 (20.0%) patients were feeling discomfort. The difference was significant ($p<0.05$). In 2 hours fast group, all (100%) patients had comfort with endoscopy. Similarly, in 8 hours fast group, all (100%) patients had comfort with endoscopy. In 2 hours fast group, gastroenterologist observed nausea in 32 (71.1%) patients, and liquid stasis in 13 (28.9%) patients, while regurgitation at intubation, food stasis, and risk of aspiration were not observed during endoscopy. In 8 hours fast group, gastroenterologist observed nausea in 45 (100%) patients, while liquid stasis, regurgitation at intubation, food stasis, and risk of aspiration were not observed during endoscopy. The difference in both groups was highly significant ($p<0.05$). Procedure was safe in

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all (100%) patients in both groups. Gastric mucosa was visible and clear in all (100%) patients on endoscopy in both groups. The overall endoscopy quality rate was 7.47±0.51 in 2 hours fast group and 7.78±0.60 in 8 hours fast group. The difference in both groups was significant (p<0.05) and 8 hours fast showed better endoscopy quality score, although in both groups, all patients had score 7 or above, which was higher than cutoff value we took for our study. The overall quality of endoscopy was good in all (100%) patients in both groups (Table 2).

Characteristics	2 hours fast (n=45)	8 hours fast (n=45)
Age (years)	39.24±5.29	55.89±14.05
Gender		
Male	31 (68.9%)	24 (53.3%)
Female	14 (31.1%)	21 (46.7%)
BMI	24.09±2.79	25.11±1.89
Diabetes		
Yes	-	9 (20%)
No	45 (100%)	36 (80%)
Indication of endoscopy		
ADP	13 (28.9%)	5 (11.1%)
GERD	27 (61%)	27 (60%)
Hematemesis	-	5 (11.1%)
Vomiting	5 (11.1%)	8 (17.8%)
Duration of symptoms	55.07±38.33	35.96±39.10

Table 1: Demographics of patients

Characteristics	2 hours fast	8 hours fast	P-value
Patient complaint			
Hunger	-	5 (11.1%)	0.047
Thirst	-	-	
Weakness	-	-	
Anxiety	27 (60.0%)	18 (40.0%)	
Nausea	13 (28.9%)	13 (28.9%)	
Discomfort	5 (11.1%)	9 (20.0%)	
Comfort of endoscopy			
Yes	45 (100%)	45 (100%)	NA
No	-	-	
Gastroenterologist assessment			
Nausea	32 (71.1%)	45 (100%)	0.000
Regurgitation at intubation	-	-	
Liquid stas is	13 (28.9%)		
Food stasis	-	-	
Risk of aspiration	-	-	
Safety of the procedure			
Yes	45 (100%)	45 (100%)	NA
No	-	-	
Gastric mucosa visibility			
Yes	45 (100%)	45 (100%)	NA
No	-	-	
Overall endoscopy quality rate	7.47±0.51	7.78±0.60	0.009
Quality			
Goo d	45 (100%)	45 (100%)	NA
Average	-	-	
Poor	-	-	

Table 2: Comparison of outcome of procedure

DISCUSSION

Perioperative fasting, often known as NPO (nil per os), is a common pre-operative prescription to prevent intraoperative aspiration. The period a patient is without any oral liquids or solids before an operation is referred to as "NPO." NPO after midnight is typical in most hospital settings. Numerous evidence-based research, on the other hand, show that extended NPO has a number of negative side effects and surgical problems [8]. In the hospital, NPO orders are frequently used to keep patients fasting. These orders are made for imaging examinations, treatments, or surgeries, either to get optimal findings or to minimize problems such as vomiting and aspiration [9-11]and for clinical reasons such as intestinal blockage, acute pancreatitis, or aspiration risk following stroke [12][13]. Although the grounds for NPO orders appear to be wide, new research have cast doubt on the orders' long-standing unrestricted usage [14][15]. Fasting often and for lengthy periods of time as a result of NPO orders can promote malnutrition and have a negative impact on patient outcomes [14-17] In the present study, in the 2 hours fast

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group, out of 45 cases, no patients had hunger, thirst, or weakness before undergoing procedure while 27 (60.0%) patients had anxiety, 13 (28.9%) patients had nausea and 5 (11.1%) patients were feeling discomfort. In 8 hour fast groups, out of 45 cases, 5 (11.1%) patients had hunger, but no patient had thirst or weakness before undergoing procedure while 18 (40.0%) patients had anxiety, 13 (28.9%) patients had nausea and 9 (20.0%) patients were feeling discomfort. In 2 hours fast group, all (100%) patients had comfort with endoscopy. Similarly, in 8 hours fast group, all (100%) patients had comfort with endoscopy. In 2 hours fast group, gastroenterologist observed nausea in 32 (71.1%) patients, and liquid stasis in 13 (28.9%) patients, while regurgitation at intubation, food stasis, and risk of aspiration were not observed during endoscopy. In 8 hours fast group, gastroenterologist observed nausea in 45 (100%) patients, while liquid stasis, regurgitation at intubation, food stasis, and risk of aspiration were not observed during endoscopy. The difference in both groups was highly significant ($p<0.05$). The overall endoscopy quality rate was 7.47±0.51 in 2 hours fast group and 7.78±0.60 in 8 hours fast group ($p<0.05$). In both groups, all patients had score 7 or above, good quality of endoscopy. In a study, Koeppe et al. discovered that anxiety (8% vs 25%; P=0.029), general discomfort (18% vs 42%; P=0.010), hunger (44% vs 67%; P=0.024), and weakness (22% vs 42%; P=0.034) were all better with a 2 hour fast than an 8 hour fast. After endoscopic intubation, regurgitation of stomach contents into the esophagus did not vary between those who fasted for 2 hours and those who fasted for 8 hours (26% vs 19%; P=0.471). Pulmonary aspiration was not a problem. Most patients' gastric mucosal appearance was normal after 2 hours or 8 hours of fasting (96% vs. 98%; P=0.999) [13]. According to Franklin et al., 22.6% of patients admitted to a university hospital were kept fasting or on a clear liquid diet for three days or longer, with only 58.6% of the lengthy NPO orders judged acceptable [18]. Lamb et al, discovered that the average fasting time before endoscopy was 14 hours, compared to the official requirement of 6 hours, and the fasting time after major gastrointestinal surgical procedures was 58 hours, compared to the recommended 24 hours, in the gastrointestinal wards of a tertiary referral hospital [19,20]. Not much literature is available in this regard and very few work done. Further trials should be done with large sample size and more prolonged follow-up to determine the effect of 2 hours fasting after endoscopy.

CONCLUSION

Thus 2 hours fast achieved results equivalent to those achieved in 8 hours fasting for the purpose of endoscopy. So, as a day case procedure, endoscopy can be performed on the same day after a 2 hour fast, instead of waiting for 8 prolonged hours. We are now able to recommend the 2 hours fasting method with least complications alongside an improved outcome of endoscopy.

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