EFFECTIVENESS OF OF ENDOSCOPIC RETROGRADE CHOLANGIOPANCREATOGRAPHY FOR TREATMENT OF OBSTRUCTIVE JAUNDICE

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ABSTRACT

Background: Endoscopic retrograde cholangiopancreatography is one of leading procedures for diagnosis and management of obstructive jaundice.

Objective: To assess the effectiveness of endoscopic retrograde cholangiopancreatography for biochemical and symptomatic improvement in patients of obstructive jaundice

Materials and Methods: This cross-sectional study was conducted on 154 patients at MMC General Hospital Endoscopy suite. All the patients had a baseline liver function tests and Ultrasound abdomen. Patients were being observed in the ward for 12 hours post ERCP followed by repeat of liver function tests. The data analysis was done by SPSS version 23. Frequencies and percentages were applied for categorical data. Mean and SD were applied for quantitative data. Paired sample t test was applied for assessing the biochemical improvement before and after intervention p value of less than 0.05 as significant.

Results: The mean age of the patient was 51 years with a minimum of 30 and maximum of 79 years. There was equal male to female ratio.46% of patients had CBD stones ,43% had strictures in CBD,8.4% had carcinoma pancreas and 2.6% had periampullary growth .46% patients underwent sphincterotomy with balloon extraction while 54% had stent placement for stones evacuation and drainage of bile flow 74% of the patients had significant improvement of clinical symptoms in 7 days while 26% had improvement in 3 days .Post ERCP pancreatitis was 2% of cases .The mean ALT and AST before intervention were 124 and 123 units/L respectively .The mean ALP and bilirubin were 602 and 4.6 units/L respectively .The mean ALT,AST,bilirubin and ALP after the intervention were 73,74,410 and 2.6 units/L respectively. Significant improvement was seen in the liver function tests, clinical symptoms as reflected by a p value of less than 0.05

Conclusion: In conclusion ERCP is an excellent therapeutic procedure for the management of obstructive jaundice.

Key Words: Sphincterotomy, Balloon Extraction, Pancreatitis

INTRODUCTION

Endoscopic Retrograde Cholangiopancreatography is the passion of every trainee to acquire as an essential skill for advancing in the career. [1] It is considered one of the pillar of advanced gastroenterology beside endoscopic ultrasound and fibroscan.[2] It needs a meticulous operator, skillful hands, presence of mind and patience of the person.[3]

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The procedure becomes increasingly difficult in patients with advancing age, history of ischemic heart disease, failed attempt in another center and a hospital with limited or suboptimal facilities. [4]

The complications are inevitably tied with any procedure. Endoscopic sphincterotomy is an essential prerequisite for stone extraction and thermal injuries can lead to a very high degree of pancreatitis and impaired homeostasis. The endocut has been found to more dangerous having more chances of post ERCP pancreatitis .[5]On the other hand the early precut is highly effective for preventing it contrary to repeated attempts of cannulation.[6]

Going for an exaggerated sphincterotomy to have stones extraction in a single go is sometimes a well taken risk as the endoscopist believe that the bleeding can stopped by an

adrenaline injection at that time. But that doesn't pay off every time and the patient can end up on a surgical table needing extensive interventions or repair.[7]The rate of adverse effects or complications after a sphincterotomy is 10% with gastrointestinal bleeding leading the show. Patients with low blood index mainly thrombocytopenia have a greater risk. There has to be a greater caution in patients with malignancy as well who can develop bleeding immediately.[8]

There is a need for changing the approach and be more defensive at times. Going for a small in the papilla or a precut sphincterotomy as a reliable salvage technique for the purpose of common bile duct cannulation is worth it.[9] One has to remember that a balloon can be inserted and inflated for stone drainage. Even if that fails a stunt can inserted for bile drainage and that can relieve the symptoms of jaundice intractable pruritis and change in the color of the stools.[10]The main objective of the study is assess the effectiveness of endoscopic retrograde cholangiopancreatography for biochemical and symptomatic improvement in patients of obstructive jaundice

MATERIALS AND METHODS

This cross-sectional study was conducted on 154 patients at MMC General Hospital Endoscopy suite having well equipped ERCP facilities. ERCP is the standard of care for relieving the obstruction, with reported success rates between 85% and 95%. Given the wide prevalence of the condition and the high success rate of the procedure, a sample size of 154 is reasonable to ensure that conclusions can be generalized to the wider patient population offering enough data for robust analysis (Prat, F., et al. (2001). "Endoscopic sphincterotomy for bile duct stones in patients with cholecystectomy and obstructive jaundice: immediate and long-term results.) The sample technique was non-probability convenient sampling. This was preceded by ethical approval from research committee and ethical review board of the hospital bearing a diary no ERB/0014/2024 dated 11-01-2024.All the patients had a baseline liver function tests and Ultrasound abdomen to check their compatibility got ERCP as well as MRCP. At the time of ERCP, if stones were found in the common bile duct extraction was done with balloon. But if there were large or impacted stones that may be difficult remove, biliary stenting was performed. Endoscopic stent placement was done in case of malignant growth obstructing the bile flow, common bile duct strictures or large multiple stones. Patients were being observed in the ward for 12 hours post ERCP followed by repeat of liver function tests and assessment of improvement by doing clinical examination and seeing pattern of LFTS. The data analysis was done by SPSS version 23. Frequencies and percentages were applied for categorical data. Mean and SD was applied for quantitative data. Paired sample t test was applied for assessing the biochemical improvement before and after intervention with mentioning of mean difference and confidence interval and p value of less than 0.05 as significant.

RESULTS

The mean age of the patient was 51 years with a minimum of 30 and maximum of 79 years. There was equal male to female ratio.46% of patients had CBD stones,43% had strictures in CBD,8.4% had carcinoma pancreas and 2.6% had periampullary growth .46% patients underwent sphincterotomy with balloon extraction while 54% had stent placement for stones evacuation and drainage of bile flow 74% of the patients had significant improvement of clinical symptoms in 7 days while 26% had improvement in 3 days. Post ERCP pancreatitis was seen in only 1.3% of cases. The mean ALT and AST before intervention were 124 and 123 units/L respectively. The mean ALP and bilirubin were 602 and 4.6 respectively units/L. The mean ALT, AST, bilirubin and ALP after the intervention were 73,74,410 and 2.6 units/L respectively. There was remarkable improvement in liver function tests post ERCP as reflected by table below showing a comparison of mean values before and after the procedure. Significant improvement was seen in the liver function tests, clinical symptoms as reflected by a p value of less than 0.05 for ALT, AST, ALP and bilirubin.

Table 1: Disease Distribution of Patients
CBD: Common Bile Duct

Diagnosis	Frequency	Percent
CBD STONES	71	46.1
CBD STRICTURES	66	42.9
CARCINOMA HEAD OF PANCREAS	13	8.4
PERIAMPULLARY GROWTH	4	2.6
Total	154	100.0

Table:2 Clinical Improvement Post ERCP

Symptomatic Improvement	Frequency	Percent
IMPROVEMENT IN 3 DAYS	40	26
IMPROVEMENT IN 7 DAYS	114	74
Total	154	100

Table 3: Post ERCP Pancreatitis

Pancreatitis	Frequency	Percent
YES	2	1.3
NO	152	98.7
Total	154	100

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	ALT1 - ALT2	50.77273	29.70102	2.39338	46.04440	55.50106	21.214	153	.000
Pair 2	AST1 - AST2	51.05844	24.19346	1.94956	47.20690	54.90998	26.190	153	.000
Pair 3	BILIRUBIN - BILIRUBIN2	1.96948	.86556	.06975	1.83169	2.10728	28.237	153	.000
Pair 4	ALP1 - ALP2	191.57143	51.93949	4.18540	183.30279	199.84007	45.771	153	.000

The above table shows mean difference for liver enzymes before and after ERCP with ALT (50.77). AST (51.05), BILIRUBIN (1.96) and ALP (191) with a CI for ALT (55.50- 46.04). AST (54.90-47.20), BILIRUBIN (2.10-1.83), and ALP (199-183) and a highly statistically significant p value less than 0.05

DISCUSSIONS

A very recent study done on 146 patients who did have ERCP for obstructive jaundice as an indication did prove that ERCP was very instrumental for the treatment of benign as well as malignant bile duct obstruction .[11]In addition to this , ERCP assists the diagnosis of malignant stenosis of the proximal common bile duct, from where histological biopsies can be easily be sent for analysis[12] . There have been comparative studies for efficacy of ERCP and PTCD. In proximal or intrahepatic bile duct obstruction, PTCD is superior over ERCP. In a previous study, PTCD reduced the number of individuals with postoperative jaundice at various time intervals, enhanced 1-year and median survival, and did improve the patients'

liver function and as whole as whole clinical condition Because each method has its own advantages and disadvantages, clinicians often have difficulties in choosing between the two.[13]

According to our study 46% patients underwent sphincterotomy with balloon extraction while 54% had stent placement for stones evacuation and drainage of bile flow. 74% of the patients had significant improvement of clinical symptoms in 7 days while 26% had improvement in 3 days. Post ERCP pancreatitis was seen in only 1.3% of cases. The mean ALT and AST before intervention were 124 and 123 units/L respectively. The mean ALP and bilirubin were 602 and 4.6 respectively. The mean ALT, AST, bilirubin and ALP after the intervention were 73,74,410 and 2.6 units/L respectively. There was remarkable improvement in liver function tests post ERCP as reflected by table below showing a comparison of mean values before and after the procedure. Significant improvement was seen in the liver function tests, clinical symptoms as reflected by a p value of less than 0.05 for ALT, AST, ALP and bilirubin.

The reduced use of ERCP use as an intervention in children compared to adults is less that is governed relatively low prospect of ERCP use in children, lack of physicians with expertise , and absence of specialized equipment for younger age group .[14]Recently there has been witnessed enhanced use of ERCP for the treatment of pediatric age group biliary diseases, including congenital pancreaticobiliary diseases, biliary stones , biliary duct strictures, pancreas divisum, and acute as well as chronic pancreatitis in children. Although MRCP is noninvasive has become diagnostic modality for obstructive disease, ERCP remains the gold standard as it diagnostic and therapeutic both.[15]

Post-ERCP complications can occur in about 15% of the procedures and most of them are of moderate intensity. Pancreatitis is the common one. According to the literature, incidence rates of pancreatitis after ERCP can range from 3.5% in low-risk patients to 14.7% in patients who are high risk. A recent systematic review as well as meta-analysis compared ERCP and EUS-guided drainage of bile for the treatment of malignant bile duct obstruction, did find that 9.5% of the patients in the ERCP-group developed pancreatitis after the procedure. Another study meant for evaluating effectiveness of ERCP in patients with distal malignant bile duct obstruction reported overall adverse events in 15.6% of the patients. Our rate of complications mainly pancreatitis is 1.3 % which comparable to previous reports.[4]

CONCLUSION

ERCP for obstructive jaundice and resultant derangement of liver function tests can be performed effectively with favorable clinical outcomes.

STRENGTHS AND LIMITATIONS

Strengths of our study includes the good sample size from a real-life cohort, consisting of all the patients in our hospital undergoing ERCP for the initial management of obstructive jaundice. The patients did have a proper work up before ERCP including non-invasive investigations like ultrasound, MRCP and liver function tests prior to the procedure All endoscopy reports were dictated by consultants and were scrutinized properly. Multicentered studies and large sample size will be more beneficial to further emphasize on the therapeutic utility of ERCP.

Authors contributions:

Following authors have made substantial contributions to the manuscript as under:

MA,JUAK: Concept and study design, acquisition of data, critical revision, approval of the final version to be published

KH,AZ:Concept and study design, analysis and interpretation of data, drafting the manuscript, critical revision, approval of the final version to be published

SAAAS,HF: Acquisition of data, drafting the manuscript, approval of the final version to be published

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