The Success Rate of ERCP for Identifying and Stenting of Obstructive Jaundice in Dr. Cipto Mangunkusumo General National Hospital, Jakarta

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ABSTRACT

Background: *Obstructive jaundice can be caused by malignant or benign origin. The treatment for these situations includes drainage by biliary stenting. The aim of this study was to evaluate the success rate of Endoscopic Retrograde Cholangiopancreatography (ERCP) in evaluating malignant obstructive jaundice and the success rate of plastic stent placement.*

Method: *We conducted a retrospective study based on data of ERCP in Cipto Mangunkusumo hospital from October 2004 until July 2007.*

Results: *We evaluated 100 patients who had undergone ERCP examination, 92 (92%) of them had clinical diagnosis of obstructive jaundice (direct bilirubin > indirect bilirubin). Those with obstructive jaundice were found to have no malignancy in 47 (51.1%) patients, with malignancy in 28 (30.4%) patients, and 17 (18.5%) of them would have further diagnostic evaluation. We had conducted a descriptive study in 36 patients who had tried to have plastic stent placement. Nineteen (52.8%) patients succeed in plastic stent placement; whereas 17 (47.2%) patients had failed. Further evaluation showed that age and sex did not affect stent successfulness, and malignancy was showed to be a factor for stent failure (malignancy: 16 fail and 6 successes (27.3%) vs. non malignancy: 1 fail and 13 successes (92.85%).*

Conclusion: *Cipto Mangunkusumo hospital has acceptable success rate for diagnostic ERCP in obstructive jaundice patients. However, it is relatively lower than other studies, which might be caused by late referral and different standard instruments that were used.*

Keywords*: obstructive jaundice, malignancy, ERCP, stent placement*

INTRODUCTION

Endoscopic Retrogade Cholangiopancreatography (ERCP) has become the first line approach as a treatment for patients who are critically ill,[1,2] patients with suspect of common bile duct stones,[3] and malignancy[4] because of its capabilities in diagnosis and treatment.

Obstructive jaundice is a clinical entity resulting from obstruction of bile flow into the duodenum, either intra-hepatic or extrahepatic, which result in increased in serum conjugated bilirubin level.[5] The incidence of obstructive jaundice is different in each region and race as there are variable causes (benign or malignant). Bile duct obstruction may arise from stones (cholesterol or pigment gallstones), disease of the bile ducts (inflammation or neoplasm), or extrinsic compression of the biliary tree (pancreatitis, vascular enlargement, or neoplasm).[6] The treatment primarily includes removing the obstruction and maintaining drainage, which can be ERCP, Percutaneous Transheptic Biliary Drainage (PTBD), or surgical procedures. In malignant diseases, plastic stent placements are usually performed to alleviate pruritus or to facilitate

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chemotherapy or chemoembolization that is otherwise precluded by jaundice.[7] The success rate of ERCP for diagnosis is highly variable from 50% to 96% depends on operator, endoscopic aspect, disease severity, and anatomical abnormality.[8,9]

METHOD

A study was conducted to evaluate the success rate of malignant obstructive jaundice evaluation by using ERCP and the success rate of plastic stent placement in such patients, particularly in Cipto Mangunkusumo hospital. This was a retrospective study by using medical records of patients who had undergone ERCP from October 2004 until July 2007.

The "Success in Identification" was defined as successful identification of stone/mass in Common Bile Duct (CBD), either before or after canulation. The "Success of plastic stent placement in CBD" was defined as successful plastic stent placement in CBD through a stenosis or stricture of CBD.

Inclusion criteria for this study was patient with clinical obstructive jaundice (direct bilirubin > indirect bilirubin). Exclusion criteria for successful plastic stent placement was when in the patient could be identified as malignancy or non-malignancy.

RESULTS

Of 100 patients who had undergone ERCP, there were only 92 patients (92%) who had clinical diagnosis of obstructive jaundice, i.e. direct bilirubin > indirect bilirubin. Among those 92 patients, the success rate of ERCP in identifying the cause of obstructive jaundice was 81.5%; 47 (51.1%) malignancy vs. 28 (30.4%) non malignancy.

Among 85 patients with identified cause of obstruction, there were only 36 patients who had undergone plastic stent placement. Thirty two patients did not have plastic stent placement, and 7 patients had no data regarding their stenting status.

We then evaluated the success rate of 36 patients that had undergone plastic stent placement and demonstrated 52.8% success rate (19 patients succeed, 17 patients failed). We tried to identify some factors that may contribute to the success rate of plastic stent placement (table 1). We found that age and gender were not likely the factors that contribute to the success rate, while malignancy appeared to be a factor that may influence the success rate.

DISCUSSION

The success rate was 81.5% in identifying the cause of obstructive jaundice, which is similar to other center reports. The failure of identification might be due to instrument used in this study. Therefore, it may significantly alter the success rate of identification. In general, for all indications, a competent operator in ERCP or endocopist should be expected to have success rate of 80 to 90% for ERCP cases with a difficulty grade of 1.[10] Our study shows that the quality of our endoscopists is within the recommended rate. The quality assessment of ERCP must not only rely on success rate but also on the complication rate as well. Grading the difficulty of the procedure for each patient will also give us a better description for quality.

The success rate was 52.8% in plastic stent placement and depends largely on the cause: malignant or not. Other study reports the success rate of endoscopic stent placement ranges from 84 to 94%.[11] This "low" success rate in our study may be caused by the instrument operators, or disease severity. Unfortunately, we have no data regarding the type of plastic stent used in every patient that permits us to evaluate its contribution to the success rate. This study was conducted in the referral hospital in which, many patients come with a later stage of disease and this may affect the study result. As the stage of malignancy will likely influence success, an early diagnosis and referral is necessary to increase the success rate. ERCP has significant complication rate than other endoscopic procedures. We suggest further studies to evaluate the effect of instrument, duration of disease and other factors on the success rate of plastic stent placement.

Although age and gender appeared to have no influence to the success rate, our study only had a small sized of plastic stent placement (only 36 patients), which may be contribute to the non-significance of these factor. A prospective sampling with larger study groups will likely give better conclusion.

Table 1. The success rate of plastic stent placement with various factors

Variable	Failed	Succeed	Total
Malignancy	16	6 (27.3%)	22
Non-malignancy	1	13 (92.85%) *	14
Male	12	11 (47.8%)	23
Female	5	8 (61.5%)	13
Age > 45	14	12 (46.15%)	26
Age < 45	3	7 (70%)	10

* $p < 0.01$

ERCP induced pancreatitis is usually between 1% to 7%, cholangitis in less than 1%, cholecystitis in 0.2% to 0.5%, hemorrhage in 0.8% to 2%, and perforation in 0.3% to 0.6%.[10] Because of its significant complications, we should inform the patient about the success probability of this procedure.

CONCLUSION

Cipto Mangunkusumo hospital as national reference hospital has demonstrated acceptable success rate for ERCP diagnosis in obstructive jaundice patients. The success rate of plastic stent placement is relatively lower than other study, which may be caused by late referral and the standard instruments that were used. A newer and complete instrument should be instituted immediately to increase our national reference hospital performance.

Patients who had failed drainage by ERCP procedure must have PTBD or surgical procedures as soon as possible to avoid sepsis and other complications. It is then imperative to develop a scoring system that can predict the success rate of ERCP procedures. We recommend a larger research particularly a multi-center research, to evaluate factors that contribute to stenting failure, such as: age, gender, race, duration of symptoms, social status, blood transaminase at presentation, direct and indirect bilirubin, alkaline phosphatase, γ-GT, etc. Such system may enable us to suggest, the patients directly to have appropriate and more likely success procedure. Considering the cost-effectiveness, we hope that this system will be developed soon.

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