Asian Pacific Journal of Cancer Care
Vol 8 No 4 (2023), 779-781
Short Communication

Percutaneous Transhepatic Biliary Drainage for Malignant Biliary Obstruction in Advanced Solid Organ Malignancy: Clinical Outcomes and Quality of Life Perspective

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Background and objective: Malignant obstructive jaundice carries a poor prognosis. While percutaneous transhepatic biliary drainage (PTBD) offers a treatment option, its impact on quality of life remains unclear. This study aimed to assess the potential impact of PTBD on quality of life in patients with obstructive jaundice secondary to advanced malignancy, using surrogate markers such as complications, hospital length of stay, readmission, reintervention, and mortality.

Materials and Methods: This retrospective analysis was conducted on a single-center cohort of all patients with advanced solid organ malignancies undergoing PTBD between April 2020 and February 2022. Data were collected from electronic medical records.

Results: Among the 16 patients, 62.5% experienced abdominal pain and 37.5% developed cholangitis. Individual cases experienced peritonitis, biliary leak, perihepatic abscess, and hemobilia. The median hospital length of stay following PTBD was nine days. The 30-day readmission rate for PTBD-related complications was 31.3%, with a median of three total readmissions per patient. The 30-day reintervention rate was 62.5%. The 30-day all-cause mortality rate was 25% (95% CI: 8.9-53.3), including one procedure-related death.

Conclusion: The high risk of complications, reinterventions, hospitalizations, and mortality associated with PTBD can negatively impact the quality of life of patients with obstructive jaundice secondary to advanced solid organ malignancies. Thorough patient assessments are crucial for selecting appropriate candidates for PTBD.

Introduction

Obstructive jaundice is an ominous complication of solid organ cancer and carries a poor prognosis [1]. Most cases of malignant obstructive jaundice are too advanced for curative surgical management [2], so select patients can undergo percutaneous transhepatic biliary drainage (PTBD) instead. This is a well-recognised palliative procedure that can alleviate symptomatic hyperbilirubinemia and bridge patients to systemic anticancer treatment, which can improve survival [3]. However, this procedure is associated with morbidity and mortality [4], which may conflict with the goals of optimising quality of life. The impact of PTBD on a patient's quality of life, which is often a paramount consideration in this cohort of patients, is unclear. This study outlines that in patients with advanced solid organ malignancy and obstructive jaundice, PTBD can carry a considerable risk of procedural complications, reintervention, and increased hospitalisation, all of which can undermine quality of life. These factors are not well described in the literature. These

factors are possibly underestimated given the paucity in the medical studies and there is limited data from small studies which have examined readmission rates and length of stay after PTBD for malignant obstructive jaundice. Further exploration in these factors is crucial due to their potential impact on a patient's quality of life and to increase clinician's awareness of these issues which are often unrecognised. Careful individualised patient assessment to determine suitability of PTBD and ensuring that the procedure aligns with the goals of care is crucial. Moreover, considering of a conservative palliative approach should be discussed with patients deemed unsuitable for PTBD.

Methods

This is a retrospective cohort analysis of patients with solid organ malignancies and obstructive jaundice, who had undergone PTBD between April 2020 and February 2022 at a tertiary teaching hospital. Data was collected and analysed from the electronic medical records including baseline patient characteristics, post-procedural complications, length of hospital stay post PTBD, 30-day readmission rate, total number of readmissions, 30-day reintervention rate, and 30-day mortality.

Results

There were sixteen patients identified and 56.3% were male, with a median age of 70 (range: 51-86) years. All patients had unresectable cancer, and 81.3% had metastatic disease. Among them, abdominal pain, cholangitis, and stent dysfunction were observed in 62.5%, 37.5%, and 25% of patients, respectively. Additionally, individual cases of peritonitis, biliary leak, perihepatic abscess, and haemobilia were also observed. The median hospital length of stay post PTBD was 9 (range: 3-19) days. The 30-day reintervention rate was 62.5% and included repeat PTBD or endoscopic retrograde cholangiopancreatography. The 30-day readmission rate for PTBD-related complications was 31.3%. There was a median of three total readmissions per patient for PTBD-related complications. The 30-day all-cause mortality was 25% (95% CI:8.9-53.3), which included one procedure-related death.

Limitations

There are several limitations of the presented study. This is a retrospective analysis of a small sample size with heterogeneity amongst patients and relying on detailed data from the electronic medical records. However, this study captured all appropriate patients within the data collection timeframe and the generatability is heightened by examining a particular cohort of patients with advanced solid organ malignancy. Despite these limitations, the study explores a topic that is poorly understood. It serves as a reminder of the palpable morbidity and mortality of PTBD and to ensure a comprehensive assessment is performed to select appropriate candidates for the procedure.

Discussion

This study used objective data, including complications, length of hospital stay, reintervention, and readmission data as surrogates for quality of life. Importantly, these factors have not been well described. Currently, there is limited and conflicting data in the medical literature about the impact of PTBD on quality of life, which has been analysed subjectively using questionnaires [5-7].

In this study, all patients had at least one complication with abdominal pain, cholangitis, and stent dysfunction being the most prominent. Post-PTBD complications such as sepsis, cholangitis, and stent dysfunction have been reported to be up to 30% of patients [8]. Progression of disease may be a confounding factor contributing to these complications, especially in patients not receiving palliative anticancer therapy. Equally, comorbidities, cancer-related pain, and psychosocial issues may require multidisciplinary management and may prolong admission.

Two notable studies have examined readmission data post-PTBD. One reported a 30-day readmission rate of 20.8% and a median length of stay of nine days [9]. Another study reported a mean length of stay of 16.6 days post-PTBD [10]. These are comparable figures in this analysis whereby the 30-day readmission rate was 31.3% and a median length of hospital stay of nine days. Furthermore, this analysis identified a median of three readmissions for PTBD-related complications, which serves as a reminder that complications may be subacute and require hospital admission after discharge. The complex dynamics of these factors can all influence adversely impact quality of life.

Repeat biliary drainage procedures are common, and one study describes that up to 30% of patients will have recurrent obstructive jaundice at some stage of their illness requiring reintervention [8]. This cohort of patients comprised of cases with advanced malignancy and the majority have unresectable metastatic disease, so it is not overly surprising that over 60% of patients required reintervention within 30 days.

Mortality rates were high in this study, with death being observed in 25% of patients within 30 days. However, this is similar to the current literature with a large retrospective cohort study reporting 30-day mortality rate of 23.1% and age being the most significant factor in the multivariable analysis [4], noting that this study comprised an elderly cohort of patients with a median age of 70 years.

In conclusion, in this cohort of patients with obstructive jaundice from advanced solid organ malignancy, PTBD carried a high risk of complications, reintervention, and hospitalisation, which can all negatively impact quality of life. Importantly, there is high early mortality in this population. Although these results warrant larger prospective validation, this study emphasises that conducting thorough individualised assessments are crucial in selecting suitable candidates for PTBD, and ensuring it aligns with the goals of care. In those deemed unsuitable for PTBD, a conservative palliative approach should be considered.

Author contributions

LV is the primary author and guarantor of this article. SC had substantial contribution to study design, analysis, interpretation and drafting of the manuscript. DE had substantial contribution to data interpretation. All authors approved the final version of the manuscript.

Ethics

Ethics was approval by GCHHS Research Governance Authorization. (HREC reference: LNR/2022/QGC/8537)

References

References

1. Berberat PO, Künzli BM, Gulbinas A, Ramanauskas T, Kleeff J, Müller MW, Wagner M, Friess H, Büchler MW. An audit of outcomes of a series of periampullary carcinomas. *European Journal of Surgical Oncology: The Journal of the European Society of Surgical Oncology and the British Association of Surgical Oncology.* 2009; 35(2)DOI
2. Henson DE, Schwartz AM, Nsouli H, Albores-Saavedra J. Carcinomas of the pancreas, gallbladder, extrahepatic bile ducts, and ampulla of vater share a field for carcinogenesis: a population-based study. *Archives of Pathology & Laboratory Medicine.* 2009; 133(1)DOI
3. Vandenabeele LAM, Dhondt E, Geboes KP, Defreyne L. Percutaneous stenting in malignant biliary obstruction caused by metastatic disease: clinical outcome and prediction of survival

according to tumor type and further therapeutic options. *Acta Gastro-Enterologica Belgica.* 2017; 80(2)

4. Rees J, Mytton J, Evison F, Mangat KS, Patel P, Trudgill N. The outcomes of biliary drainage by percutaneous transhepatic cholangiography for the palliation of malignant biliary obstruction in England between 2001 and 2014: a retrospective cohort study. *BMJ open.* 2020; 10(1)DOI
5. Robson PC, Heffernan N, Gonen M, Thornton R, Brody LA, Holmes R, Brown KT, et al. Prospective study of outcomes after percutaneous biliary drainage for malignant biliary obstruction. *Annals of Surgical Oncology.* 2010; 17(9)DOI
6. Saluja SS, Gulati M, Garg PK, Pal H, Pal S, Sahni P, Chattopadhyay TK. Endoscopic or percutaneous biliary drainage for gallbladder cancer: a randomized trial and quality of life assessment. *Clinical Gastroenterology and Hepatology: The Official Clinical Practice Journal of the American Gastroenterological Association.* 2008; 6(8)DOI
7. Abraham NS, Barkun JS, Barkun AN. Palliation of malignant biliary obstruction: a prospective trial examining impact on quality of life. *Gastrointestinal Endoscopy.* 2002; 56(6)DOI
8. Delden OM, Laméris JS. Percutaneous drainage and stenting for palliation of malignant bile duct obstruction. *European Radiology.* 2008; 18(3)DOI
9. Kastelijn JB, Loos MA, Welsing PM, Dhondt E, Koopman M, Moons LM, Vleggaar FP. Clinical outcomes of biliary drainage of malignant biliary obstruction due to colorectal cancer metastases: A systematic review. *European Journal of Internal Medicine.* 2021; 88DOI
10. Crosara MAT, Mak MP, Marques DF, Capareli-Azevedo FC, Hoff PM. Percutaneous transhepatic biliary drainage (PTBD) in patients (pts) with advanced solid malignancies: Clinical outcomes and prognostic factors.. *Journal of Clinical Oncology.* 2012; 30(4_suppl)DOI