Enhanced perioperative care in liver and pancreat surgery

SHORT SUMMARY

Liver and pancreatic resections are complex major abdominal surgical procedures that are still associated with considerable morbidity (up to 50%) and mortality rates (2-4%).
Traditional perioperative care for liver and pancreatic surgery has been conservative and dogmatic. Furthermore, evidence-based techniques and care elements have not yet been implemented extensively in this field. In this thesis we aimed to develop and implement an evidence-based "Enhanced Recovery After Surgery" (ERAS) care protocol in liver and pancreatic surgery in order to diminish the stress response to these major abdominal resections and accelerate recovery without compromising outcome.
In the past, ERAS programs have been implemented in colonic surgery. Multiple trials showed that these programs accelerate recovery and decrease morbidity in patients undergoing colonic resections. Additionally, hospital costs were shown to be reduced. However, despite the successes in colonic surgery, it is unclear whether an ERAS protocol can also be successfully implemented in major abdominal surgery, such as liver and pancreatic resections. It was the main purpose of this thesis to investigate whether this is indeed possible.
We started our research by conducting a systematic review and meta-analysis to evaluate the feasibility of ERAS programs in liver and pancreatic surgery. We concluded that there is some evidence for the effectiveness of an ERAS program in liver and pancreatic surgery. However, the number of high quality studies is low and protocols differ considerably amongst trials. Also, there is great variability in the endpoints and definitions used. For this reason, there is a need for uniform definitions and a core set of outcomes that should be reported in each study. We performed a systematic review and a web-survey amongst experts in hepato-pancreatico-biliary units. In this study we proposed definitions and a core outcome set as a composite endpoint. All experts reached consensus about using these definitions and the composite endpoint in future trials.
Subsequently, a uniform evidence-based ERAS protocol for pancreaticoduodenectomy was developed in collaboration with the ERAS group (www.erassociety.org) and proposed for further use. In this protocol consensus was reached on several items, but no consensus was reached on the use of prophylactic abdominal drainage. We therefore conducted a meta-analysis into this matter, which provided no conclusive evidence either. Subsequently we designed a multicentre, international randomized controlled trial, which examines the necessity of routine placement of a prophylactic abdominal drain after pancreaticoduodenectomy. This study is still ongoing.
Then we evaluated the implementation of an ERAS program in liver surgery and pancreatic surgery. We concluded that implementing an ERAS program in both forms of surgery is feasible with a decrease of postoperative length of stay without increasing morbidity, mortality or readmission rates. In addition, implementation of such an ERAS protocol in elderly patients undergoing pancreaticoduodenectomy seems feasible and safe as well. However, adherence to the ERAS program becomes more difficult in case

of complications. Finally, we assessed care providers' and patients' perceptions of the relevance and importance of the ERAS principles and concluded that ERAS principles are supported by patients and care providers. Patients and care providers rank functional recovery higher than reduced length of stay.

To conclude, we developed, implemented and evaluated an ERAS program in liver and pancreatic surgery and found that an ERAS program in these forms of surgery is feasible and does not compromise outcomes. However, morbidity remains high and efforts should be made to examine ways to further reduce complications rates and to increase protocol adherence.