

# ABSTRACT

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**Name of thesis:** Analysis of perioperative blood loss in hepatopancreatobiliary surgery

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**Introduction:** Hepatopancreatobiliary surgeries are among the most complex surgical procedures and are associated with higher blood loss and postoperative complications. By defining risk factors and optimizing the determination of perioperative blood loss, postoperative complications can be avoided, transfusion administration can be avoided, and the expenses associated with hospitalization of patients can be reduced.

**Aim of the thesis:** The aim of the study was to define the basic anatomical and physiological knowledge of the hepatopancreatobiliary region and to analyze the data set of operated patients with the main focus on their blood loss, transfusions administered and severity of postoperative complications in relation to selected anamnestic parameters.

**Methods:** The analyzed population consisted of patients operated at the Department of Hepatopancreatobiliary Surgery at the University Hospital in Hradec Králové. Patient information was obtained from the hospital information system and from the hospital records. The obtained data set was analyzed using *Microsoft Excel* and *GraphPad* software. During the three analyzed years (2019 – 2021), 256 surgical procedures were performed and thanks to accurate documentation by medical staff, we were able to include all 256 patients in the dataset.

**Results:** After a detailed processing of the dataset, we confirmed several risk factors influencing the patient's recovery. The first one defined was operative time. As the length of surgery increases, the risk of postoperative complications increases and also the length of the patient's hospital stay. Next, we demonstrated the effect of blood loss on the length of stay and the development of postoperative complications. The more blood a patient loses during surgery, the more severe complications can occur. If we found erythrocyte and platelet administration in the patient's records, a longer hospitalization time was also confirmed. On the contrary, we found the patient's physiological parameters to be statistically insignificant such as: ASA, BMI or age. Based on these variables, it is not possible to estimate the severity of postoperative complications of a given patient in our cohort. Finally, we further analyzed the age of patient. Based on the results we concluded that there

was no statistically significant correlation between the age and the incidence of neurological complications, between age and blood loss or between age and length of hospital stay.

**Conclusions:** Knowledge of risk factors in hepatopancreatobiliary surgery can move the medical field forward. Focusing on the surgical execution (operative time and blood loss) seems to be crucial in relation to both the patient's postoperative recovery and length of stay. Thus, the precision and skills of surgeons are very important and desirable. We have proposed a way in which a more accurate visual estimation of blood loss can be achieved by averaging the estimates of the principal surgeon and anesthesiologist. In our dataset, we did not find statistically significant physiological factors that influence postoperative complications in patients and therefore it would be useful to analyze a larger set of patients than ours to elucidate this issue.

**Key words:** hepatopancreatobiliary surgery, surgical procedures, blood loss, postoperative complications, operative time, length of hospital stay