Editorial

Factors contributing to readmissions after laparoscopic adrenalectomy

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There is a solid need to shorten the hospital stay to the minimum and limit the number of readmissions after surgery in the era of rising hospitalization costs. Hussein *et al.* are focused in their article published in *Gland Surgery* on analyzing factors contributing to the readmissions after adrenalectomy in the United States between 2010–2014 (1). The data source was the Nationwide Readmission Database; 20,494 patients were included and divided into two groups—30-day and 90-day readmissions, which were then compared. 7.9% and 12.7% of patients were readmitted at 30 and 90 days after discharge, similar to the other surveys (16%) (1,2). Postoperative complications were found in 15.4% of patients, whereas bleeding (7.6%) and renal failure (5.2%) were the most common. The rest of the complications which were included in the analysis were technical (2.7%), endocrine (1.7%), cardiovascular (1.2%), pulmonary (1.1%) and infection (0.7%) (1). Another study by Alkhalili *et al.* stated the readmission rate within 30 days of discharge in the 6,131 patients after laparoscopic adrenalectomy in the United States at 4.8% (data from American College of Surgeons National Surgical Quality Improvement Program-ACS NSQIP) (3). The most common reasons for readmission were in this study, pneumonia (9%), adrenal insufficiency (8.4%), sepsis (7.3%), acute renal failure (6.2%) and deep surgical site infection (4.5%). Like the discussed study, they also found that the readmitted group had a longer hospital stay and more profound intraoperative complications (3). Shariq *et al.* also used the data from the ACS-NSQIP. They found that the same-day discharge after laparoscopic adrenalectomy is not associated with increased 30-day postoperative complications and readmissions rate (4). In the whole group of patients, the most common reasons for readmissions were bleeding (13.3%), hormone-related (9.3%), infection (8%) and electrolyte/fluid imbalance (8%). Operative time and increased BMI were significantly associated with 30-day overall complications, and ASA class III was an independent risk factor for 30-day postoperative complications and unplanned readmissions (4).

The complications in the study by Hussein *et al.* were associated with a more extended hospital stay and a higher risk of readmissions (1). The group with primary and secondary malignancy was most likely to be readmitted than this with adenoma, and the complication rate was higher in this group of patients. According to the authors, the adrenalectomy should be preferably performed laparoscopically in high-volume teaching hospitals by experienced surgeons. In the analysis, the readmission after adrenalectomy added 2.06 days to the hospital stay of an average patient (additional costs of over 3 million dollars in the whole group). The authors advise that selecting vulnerable groups of patients preoperatively should impact the referring physician, type and place of surgery and postoperative care to diminish the risk of complications and

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readmissions (1). In another study, Beck *et al.* concluded that minimally invasive adrenalectomy, preventing venous thrombotic events and surgical infections and improving postoperative follow-up in the selected group of patients could diminish the rate of readmissions (5).

The limitation of the study stressed by the authors associated with the database structure is the inability to give more information about the technical issues related to the reduced complication and readmission rate. In contrast, an essential part of successful adrenalectomy is deep knowledge of retroperitoneal anatomy and precise bloodless dissection (1,6,7). One of the methods which can reduce the conversion and complication rate to the minimum (and readmission rate consequently) is the intraoperative laparoscopic ultrasound. It enables finding the correct dissection plane and exact anatomical localization of the adrenal mass (8,9). The results of using such a method of intraoperative visualization are significantly lower conversion and intraoperative bleeding rates and shorter operating time (9). Other authors also stress a thorough preoperative workup to exclude subclinical Cushing syndrome, which may be underrecognized in up to 20% of patients with incidentaloma (3,10).

To conclude, the presented study by Hussein *et al.* gives us additional knowledge on how to best treat the patients qualified for adrenal surgery. It highlights the need for further analysis of readmissions after adrenalectomy and the limitations of current databases used for this purpose, which other authors also stressed. Based on the available literature, the paramount to reducing readmissions after laparoscopic adrenalectomy seems to be appropriate patient selection, an experienced surgical team, intraoperative techniques that minimize the complication rate and shorten the operative time and high-quality postoperative health care.

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