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Risk factors of prolonged length of stay and readmission after laparoscopic appendectomy – results from large multicentre cohort study.

Both length of hospital stay (LOS) and readmission rate have been used as surrogate marker of surgical treatment. Although one of the most evident advantages of laparoscopic surgery over open approach is faster postoperative recovery and shorter length of stay, there is a proportion of patients who, due to their general condition, require longer hospitalisation.

The aim of this analysis was to identify risk factors of prolonged LOS and readmissions after laparoscopic appendectomy (LA)

An online Web-based database was created by Videosurgery Chapter of Association of Polish Surgeons. 18 surgical units in Poland and Germany submitted data to the registry of patients undergoing laparoscopic appendectomy. Median LOS in the entire cohort was 3 (2-4) days and LOS equal or longer than 2*upper quartile (8 days) was recognized as prolonged LOS. Readmissions were recorded up to 30 days after surgery. Univariate regression was used to identify potential risk factors. Variables having significant influence on LOS and readmissions were used to build multiple regression models in order to control confounding effects.

The analysis included 4618 patients. LOS ≥ 8 days was necessary in 227 (4.92%) of them, whereas readmission was recorded in 110 (2.56%) cases. Risk factors of prolonged LOS found in univariate regression included: number of LA per year <50, female sex, age > 50 years, higher ASA class, diabetes, timing from onset of symptoms to LA >48h, WBC > 20,000/mm^3, CRP >100 mg/l, complicated appendicitis i.e. perforated/gangrenous or with periappendiceal abscess, intraoperative adverse events, postoperative complications, conversion, need for reintervention after LA. In multivariate regression model following parameters were significant: complicated appendicitis (OR 2.80, 95% CI: 1.53-5.12), postoperative complications (OR 5.01, 95% CI: 2.33-10.75), conversions (OR 6.48, 95% CI: 3.48-12.08) and reintervention after primary procedure (OR 8.79, 95% CI: 3.20-24.14).

Subsequent univariate analysis identified several risk factors for readmission: ASA class, CRP >100 mg/l, annual hospital volume <50 cases/year, complicated appendicitis, postoperative complications, conversion, reintervention after LA and LA performed by resident. However, in multivariate regression only postoperative complications (OR 10.33, 95% CI: 4.27-25.00), reintervention after primary procedure (OR 5.62, 95% CI: 2.17-14.54), and LA performed by resident (OR 1.96, 95% CI: 1.03-3.70) remained significant.

In conclusion, risk factors for prolonged LOS and readmission are similar to some extent. They include complicated appendicitis, postoperative complications, reintervention after primary procedure. In addition, LA performed by resident may be associated with increased readmissions rate.

Kategoria: K1. Laparoskopia w nagłych stanach chirurgicznych / Laparoscopy in emergency surgical conditions

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