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No difference in postoperative outcome after acute surgery whether the patients presented for first time or are known with Crohn's disease

Alaa El-Hussuna [a, *], Sabah Hadi [b], Igors Iesalnieks [c]

[a] Aalborg University Hospital, Aalborg, Denmark
[b] Bispebjerg Hospital, Copenhagen, Denmark
[c] Städtisches Klinikum München Bogenhausen, Munich, Germany

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ABSTRACT

Purposes: Acute operations (within 48 h) or urgent (within 2–7 days) carry the risk of unfavorable outcome as the patient is not optimized, the operation is performed by trainees and the disease is severe necessitating acute/urgent intervention. However, Crohn's disease (CD) patients who present as acute disease may have more favorable outcome because they did not receive medications, surgery is performed early and the disease is promptly controlled.

Aim: To investigate whether CD patients presented first time have more favorable outcome compared to those who are known with CD.

Method: Retrospective multi-center study. Rate of complications, duration of hospitalization and rate of re-admission were used as a measure of postoperative outcome. Univariate and multi-variate analyses were used.

Results: Sixty-one patients in whom acute CD was first presentation (group 1) did not have more favorable outcome compared to 167 patients known to have CD (group 2) and presented acute. Mean duration of hospitalization was 8.7 days in group 1 compared to 9.4 days in group 2. Complications occurred in 12/61 patients (19.7%) in group 1 compared to 39/167 patients (23.4%) in group 2: odds ratio 1 .113, CI [0.611–2.024]. No difference in intra-abdominal septic complications rate was found between the two groups: odds ratio 0.932, CI [0.369–2.355]. Re-admission was seen in six patients (9.8%) in group 1 vs. 23 (13.8%) in Group 2: odds ratio 1.464, CI [0.566–3.788].

Conclusion: Patients undergoing acute surgery for the first CD presentation did not have more favorable outcome compared to those undergoing acute intestinal resection for known CD.

1. What this paper adds to the literature

This paper investigate a question frequently asked about the postoperative complications in patients with Crohn's disease. Although, it shows no difference in postoperative outcome, it adds to our understanding of factors influencing the postoperative complications.

2. Background

Surgical intervention plays an important role in the treatment of Crohn's disease (CD) when medical treatment fails to provide adequate symptomatic relief or complications related to the disease arise. The probability of surgery is 30% during the first year of the disease and ranges between 30% and 70% 10 years after diagnosis [1,2]. The cumulative risk for surgery is approximately 38%, 48% and 58% at 5, 10 and 20 years after diagnosis, respectively [3,4]. There is however a tendency to decreased surgery rates recently most probably due to improvement in medical treatment [2,3]. Timing of surgical intervention in treatment of CD remains a crucial yet controversial issue. Acute operations (within 48 h) or urgent (within 2–7 days) carry the risk of unfavorable outcome as the patient is not optimized, the operation is most likely performed by trainees and the disease is so severe necessitating acute/urgent intervention. However, CD patients who presented as acute disease may have more favorable outcome because they did not receive medications, surgery is performed early and the disease is promptly controlled.

* Corresponding author. Skovbyvej 18, 2740 Skovlunde, Denmark.
E-mail address: alaanewemail@gmail.com (A. El-Hussuna).

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3. Objective

To investigate whether CD patients presented first time as acute severe disease treated surgically have more favorable outcome compared to those undergoing acute or urgent surgery for known CD.

4. Method

4.1. Study design

This is multicenter retrospective cohort study.

CD patients operated in Hvidovre, Hillerød, Køge, Slagelse, Aalborg and Munich hospitals in the period between 2003 and 2013 were identified from hospital records using diagnosis code for CD and operation codes for different CD abdominal operations. Part of the data was collected during another study [5]. Data protection agency permission was obtained prior to start data collection. Demographic data, pre-operative medications, previous operations for CD, pre-operative sepsis, operation details and 30-days post-operative follow up were registered according to pre-defined study protocol.

4.2. Null hypothesis

No difference in postoperative outcome after acute surgery in CD patients presented first time and those who are known with CD.

4.3. Outcome variables

Primary outcome variable is 30-days postoperative complication rate. The definition of "intraabdominal septic complications" (IASC) was: anastomotic leak, intestinal fistula, intraabdominal abscess and/or peritonitis.

Secondary outcome variables are length of postoperative stay and re-admission rates.

Inclusion and exclusion criteria.

Only CD resections were included as shown in the study flowchart (Fig. 1). Elective operations were excluded to ensure two comparable groups:

- Group 1: patients in whom surgery was performed at the time of diagnosis. These patients underwent surgery for acute or subacute presentation of CD. In this group, the diagnosis of CD was usually established at laparotomy and/or by the histopathological examination of the resected specimen. None of these patients had received specific medical treatment prior to surgery.
- Group 2: patients with established diagnosis of CD who underwent acute or urgent surgery during the course of the disease because of intestinal complications or refractoriness to medical therapy.

4.4. Ethical considerations

Data protection agency's approval was obtained prior to collect data.

4.5. Statistical analysis

Continuous data was log transformed to insure normal distribution of data before conducting ANOVA. One way ANOVA was used in univariate analysis for continuous data. Cross tabulation with Pearson's Chi square and Fisher's exact tests were applied when appropriate. All variables in univariate analysis were included in multi-variate analysis using linear regression and multiple regression. Results were reported using 95% confidence interval [CI] and odds ratio. P- value less that 0.05 was considered significant. SPSS version 19 used for all analyses.

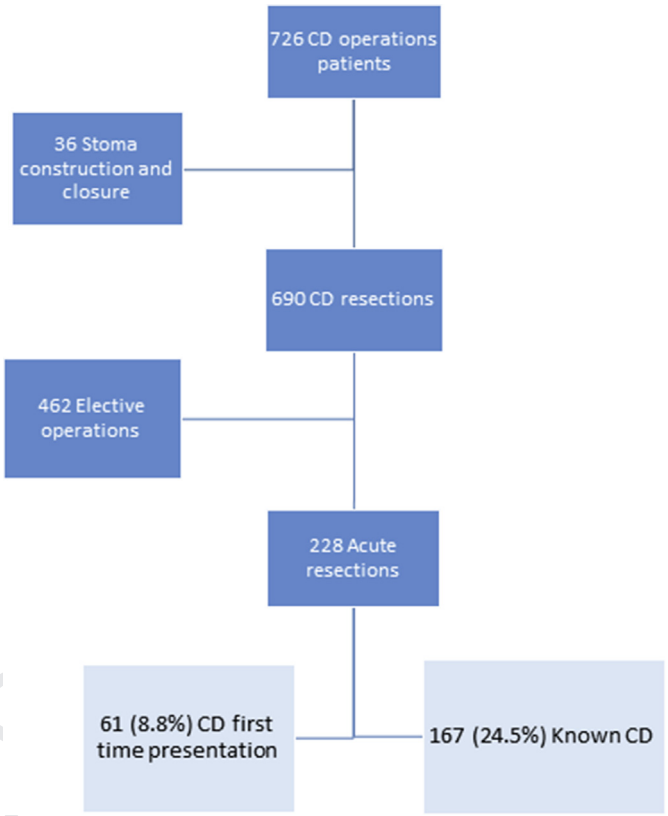

Fig. 1. The study flowchart.

5. Results

Six hundred ninety CD resections with primary anastomosis were identified using hospital data register (Fig. 1). Mean age was 40 years (range 12–90 standard deviation 16.01). Patients operated electively (N = 462, 67%) had shorter duration of hospitalization: mean 7.7 days compared to 9.2 days (p = 0.001) in patients undergoing urgent or acute surgery (N = 228). However, no difference in complication rate (Odds ratio 0.919, CI [0.755–1.118], p = 0.401) and no difference in re-admission rates (Odds ratio 0.993, CI [0.649–1.52], p = 0.97) were noted between the two groups. Sixty-one patients (Group 1, 8.8%) in whom acute CD was first presentation did not have more favorable outcome compared to 167 (24.5%) patients known to have CD and presented acute (Group 2). Patients' characteristics of the two groups are shown in Table 1. Mean duration of hospitalization was 8.7 days in group 1, compared to 9.4 days in group 2 (CI [8.3–10.2] and p = 0.57). Complications occurred in 12/61 patients (19.7%) in group 1, compared to 39/167 patients (23.4%) in group 2: odds ratio 1 .113, CI [0.611–2.024]. No difference in intra-abdominal septic complication was found between the two groups: odds ratio 0.932, CI [0.369–2.355]. Re-admission was seen in six patients (9.8%) in group 1 vs. 23 (13.8%) in Group 2 (Odds ratio 1.464, CI [0.566–3.788], RR 1.04 CI [0.942–1.156]).

No difference was shown between the two groups regarding complications, re-admission and duration of hospitalization in

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