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Title of thesis: Evaluation of C-Reactive Protein As A Biomarker In Predicting Gangrenous Cholecystitis And Difficult Emergency Cholecystectomy

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ABSTRACT

Background & Objectives:

Acute Cholecystitis (AC) is the acute inflammation of the gallbladder wall. The Tokyo guidelines criteria for the diagnosis and classification of AC in three severity grades based on physical examination, laboratory, and imaging findings. C-reactive protein (CRP) is an acute-phase reactant protein secreted by the liver in response to pro-inflammatory cytokines in the presence of inflammation, infection, trauma and underlying malignancy. CRP level is only used as a diagnostic criterion of acute cholecystitis, and it is not part of the determinant criteria of the severity assessment of the disease in the guideline. We aim to evaluate CRP as a predictor for gangrenous cholecystitis and difficult emergency laparoscopic cholecystectomy.

Patients and Methods:

This study was conducted on a basis of a prospective randomized study included 50 patients presented with acute cholecystitis and admitted to the General Surgery Department at Fayoum University Hospital. They were subjected to emergency laparoscopic within the duration from March 2021 to January 2023. Preoperative serum CRP level is assessed for all patients on admission.

Results:

All fifty patients were subjected to laparoscopic cholecystectomy in a median time of 59.5 min, out of which, 9 cases were categorized as difficult based on the

longer operative time (>90 min) with mean CRP level of (147.6 mg/dl). 4 patients were converted to open surgery with mean CRP level of (161 mg/dl). Two patients had partial cholecystectomy. 15 patients out of fifty suffered from Gangrenous cholecystitis with cut-off CRP level (48 mg/dl). As regards hospital stay, it ranged from 1 to 5 days with a median of 2 (IQR from 2 – 3 days).

CRP had significant positive correlations with operative time and hospital stay as higher CRP level was associated with longer operative time, hence longer hospital stays.

Conclusion:

Elevated serum CRP in acute cholecystitis among patients admitted from ER is a good predictor of difficult laparoscopic cholecystectomy with estimated CRP level above 31mg/l, and a good predictor of susceptibility of being gangrenous acute cholecystitis with estimated CRP level above 48mg/l.