

Original Research Article

Diagnostic value of C-reactive protein and neutrophil-lymphocyte ratio in perforated appendicitis at Hasan Sadikin Hospital Bandung

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ABSTRACT

Background: The diagnosis of appendicitis depends on the subjective criteria of clinical examination. However, distinguishing acute perforated appendicitis (local peritonitis) and non-perforated is often difficult especially in the elderly population that usually not clinically specific unless it has developed into generalized peritonitis. Between the non-perforated acute appendicitis and perforate should be distinguished because of different surgical approaches. C-reactive protein (CRP) and neutrophil-lymphocyte ratios are known to be associated with various conditions such as malignancy, heart disease, and inflammation, including acute perforated appendicitis. This examination not only is cheaper, but also feasible and available in peripheral hospitals compared to other supports such as ultrasound or CT scan, but this examination has not been routinely used so the purpose of this study is to examine the diagnostic accuracy of both laboratory parameters so as to assist a surgeon to determine whether the case of appendicitis has been perforated or not and can provide information to patients and the families about the diseases and surgical techniques to be performed.

Methods: This study used cross sectional analytic in two groups, appendicitis with and without perforation group to know the value of sensitivity, specificity, positive predictor value, negative predictor value, from CRP and RNL in both groups.

Results: Of the 46 patients who met the inclusion criteria, the mean age of patients with perforated appendicitis was 33.73 ± 17.101 , male sex counted 26 patients (56.5%) and women 20 patients (43.5%). Based on ROC curve analysis, CRP = 76,65 and RNL = 8,825 were obtained, and sensitivity, specificity, positive guess, negative prediction and accuracy value for CRP were 88.0%, 71.4%, 78 %, 5%, 83.3% and 80.4%; While for RNL of 64.0%, 80.9%, 80.0%, NDN, and 71.7%.

Conclusions: CRP and RNL have a strong diagnostic value and is moderately strong in cases of perforated appendicitis.

Keywords: C-reactive protein, Neutrophil-lymphocyte ratio, Non-perforated appendicitis, Perforated appendicitis

INTRODUCTION

Perforated appendicitis is generally associated with an abscess or phlegmon, having an incidence rate of approximately 2 per 10000, with a proportion of 25% of all cases of appendicitis. It is more common in elderly patients due to unspecific clinical manifestations and

comorbidity. The high risk of perforation also increases with increasing duration of symptoms (6% risk after the first 36 hours).^{1,3-5} The diagnosis of acute appendicitis depends on subjective criteria such as onset of symptoms, type of pain, and physical examination. Distinguishing acute appendicitis with perforation (local peritonitis) based on clinical findings is often difficult especially in elderly patients unless it has developed into generalized