
Original Article

AJMS, 2026; 12 (4): 1-13

**Preoperative and Intraoperative Determinants of Surgical Difficulty During
Cholecystectomy in Adults**

Naya B. Austin, Nylah M. Princeton, Royaltyri Dartin

Correspondence: naustin@columbia.edu

Country: USA

Abstract

Background: Complex cholecystectomy is associated with a high risk of bile duct injury and conversion to open operation. Timely risk stratification allows adaptation of surgical tactics.

Objectives: To identify key preoperative and intraoperative factors correlating with high technical complexity of laparoscopic cholecystectomy.

Methods: We analyzed data from 280 patients who underwent laparoscopic cholecystectomy. Complexity of operations was assessed using the Nassar scale (grades I–IV). We assessed age, male sex, gallbladder wall thickness on ultrasound, presence of leukocytosis, previous acute cholecystitis, and adhesive process in the upper abdomen.

Results: High surgical complexity (Nassar III–IV) was recorded in 62 (22.1%) patients. Multivariate analysis revealed the following independent preoperative predictors: gallbladder wall thickness > 4 mm (OR = 4.82; $p < 0.001$), male sex (OR = 2.64; $p = 0.008$), age > 65 years (OR = 2.15; $p = 0.021$) and delay in surgery > 72 hours from the onset of symptoms (OR = 3.41; $p = 0.002$). Conversion to open cholecystectomy was required in 11 (3.9%) patients, the main reason for which was severe inflammatory and fibrotic tissue in the triangle of Calot.

Conclusions: Gallbladder wall thickness > 4 mm on ultrasound and male sex are the main preoperative determinants of high difficulty of cholecystectomy.

Keywords: Laparoscopic cholecystectomy; surgical complexity; Nassar scale; conversion; acute cholecystitis.

To access the full-text, please contact the authors or the editorial board at editor@ajms.site

Original Article

AJMS, 2026; 12 (4): 14-23

Procalcitonin as a Biomarker for Stratifying Disease Severity in Acute Cholecystitis

Prince H. Mitchell

Correspondence: pmitchell@unilag.edu.ng

Country: Nigeria

Abstract

Background: Early differentiation between simple and destructive (gangrenous / perforated) acute cholecystitis is of critical importance for the choice of timing and extent of surgical intervention.

Objectives: To assess the diagnostic accuracy of serum procalcitonin (PCT) for determining the severity of acute cholecystitis according to the Tokyo Guidelines (TG18) criteria.

Methods: This prospective study included 165 patients with acute cholecystitis. At admission, PCT, C-reactive protein (CRP) levels, and leukocytes were measured. Patients were divided according to TG18 into 3 groups: grade I (mild, n = 82), grade II (moderate, n = 58), and grade III (severe, n = 25).

Results: PCT level significantly increased as disease severity increased: 0.12 ± 0.04 ng/mL at grade I, 0.86 ± 0.21 ng/mL at grade II, and 4.25 ± 1.12 ng/mL at grade III ($p < 0.001$). The threshold level of PCT > 0.5 ng/mL had a sensitivity of 84.3% and a specificity of 89.0% in the diagnosis of destructive forms (AUC = 0.91). For CRP > 50 mg/L, the AUC was 0.79. An increase in PCT > 2.0 ng/mL with high accuracy predicted the development of organ dysfunction (sensitivity 88.0%, specificity 92.1%).

Conclusions: Procalcitonin is a more accurate marker of severity of acute cholecystitis and gallbladder wall destruction compared to C-reactive protein.

Keywords: Acute cholecystitis; procalcitonin; biomarkers; Tokyo Guidelines; destructive cholecystitis.

To access the full-text, please contact the authors or the editorial board at editor@ajms.site

Original Article

AJMS, 2026; 12 (4): 24-35

Performance Comparison of the Hernández–Orduña, Alvarado, and RIPASA Scoring Systems in Suspected Acute Appendicitis

Alaina D. Issac, Ashlyn T. Jose

Correspondence: aissac@iisc.ac.in

Country: India

Abstract

Background: Clinical scoring systems optimize the diagnosis of acute appendicitis; however, their accuracy may vary depending on patient populations.

Objectives: To conduct a comparative analysis of the sensitivity, specificity, and predictive values of the Hernández–Orduña, Alvarado, and RIPASA scales in suspected acute appendicitis.

Methods: This prospective study included 250 patients with right lower quadrant abdominal pain. At admission, scores were calculated using all three scales. The final diagnosis was confirmed by histological examination after appendectomy (n = 185) or clinical observation (n = 65).

Results: Acute appendicitis was confirmed in 182 patients. Sensitivity and specificity of the scales were: RIPASA (threshold ≥ 7.5) – 93.4% and 79.4% (AUC = 0.91); Alvarado (threshold ≥ 7) – 78.6% and 85.3% (AUC = 0.84); Hernández–Orduña – 84.1% and 80.9% (AUC = 0.86). The RIPASA scale demonstrated the lowest rate of false-negative results (6.6% versus 21.4% for Alvarado; $p < 0.001$), particularly among women.

Conclusions: The RIPASA scale has superior sensitivity and overall diagnostic accuracy compared with the Alvarado and Hernández–Orduña scales, reducing the risk of delayed surgical treatment.

Keywords: Acute appendicitis; RIPASA scale; Alvarado scale; Hernández–Orduña scale; diagnostics.

To access the full-text, please contact the authors or the editorial board at editor@ajms.site

Original Article

AJMS, 2026; 12(4) : 36-53

Knowledge and perception about premarital exam and the results of their investigations among couples attending for this test in Hilla city 2016

Dr. Rafal Bassim Abdul Hussien, Dr. Ohood Mardan Merhije ,
Abdul Ameer, Atheer J.

Correspondence: rafalbassim80@gmail.com

Country: Iraq

Abstract

Background: Health counseling before marriage can be a most satisfying aspect of preventive medicine. Premarital Health Care is considered a component of preconception care.

Objective: To assess the knowledge and perceptions and their relation with socio-demographic factors of couples and described their investigations results at clinic.

Methods: A cross sectional and analytic study were carried out on 500 couples attending the premarital care clinic at Hilla Teaching Hospital from 1st July to 1st October 2016. The information was collected by interviewing them. The questionnaire consist of three main parts: the first part about socio-demographic data, the second part dealt with the participants' knowledge and perceptions about the premarital health care screening program and the third part about the investigation results.

Results: Association of their knowledge and perceptions with socio-demographic and other factors was analyzed with screening program (recording hemoglobin, mean corpuscular volume (MCV), virology screening (HBV, HCV and HIV), ABO Blood group and Rh and VDRL of couples). The majority of participants of both genders had a good perception toward premarital screening and showed a significant increase in knowledge among them about premarital screening as with increase in age and with more education years. But the vast majority of the participants of both gender had a significant lack in knowledge about the procedures of the test and types of the screened diseases. A vast majority of the participants believed it is important to do Premarital Health Care Screening with good perceptions toward it but inadequate knowledge about the contents of the program.

Conclusion: Most of the participants have heard about PMCS, and had positive perception toward it as they believed about their usefulness and the role of PMCS in preventing different diseases. The knowledge and perception were significantly affected by the age of participants of both gender and their educational level.

Keywords: Knowledge, perception, premarital exam, Hilla city

Full-Text Available at <https://ajms.site>, volume 12, Number 4, 2026

Original Article

AJMS, 2026; 12 (4): 54-62

**Evaluation of the RIPASA and AIR Scores for Identifying Acute
Appendicitis**

Eneraldo F. Josuedi

Correspondence: ejosue@usp.br

Country: Brazil

Abstract

Background: The RIPASA (Raja Isteri Pengiran Anak Saleha Appendicitis) and AIR (Appendicitis Inflammatory Response) scales were developed to minimize unnecessary appendectomies; however, direct comparative research on their efficiency is limited.

Objectives: To compare diagnostic accuracy and ROC characteristics of the RIPASA and AIR scales in patients with suspected acute appendicitis.

Methods: We analyzed data from 220 patients hospitalized with acute abdominal syndrome. All patients were evaluated using RIPASA and AIR scale parameters. Diagnosis was verified histologically.

Results: Acute appendicitis was diagnosed in 160 (72.7%) patients. RIPASA scale (threshold score ≥ 7.5) showed sensitivity 92.5%, specificity 75.0%, accuracy 87.7% (AUC = 0.89; 95% CI: 0.84–0.94). AIR scale (threshold score ≥ 5) demonstrated sensitivity 85.0%, specificity 88.3%, accuracy 85.9% (AUC = 0.91; 95% CI: 0.86–0.95). The AIR scale showed higher specificity and accuracy in the high-risk group (AIR ≥ 9), reducing the frequency of negative appendectomies to 2.1%.

Conclusions: The RIPASA scale is more sensitive for primary screening, whereas the AIR scale has greater specificity, which makes it preferable for decisions about operative intervention in high-score patients.

Keywords: Acute appendicitis; RIPASA scale; AIR scale; ROC analysis; negative appendectomy.

To access the full-text, please contact the authors or the editorial board at editor@ajms.site

Original Article

AJMS, 2026; 12 (4): 63-73

Utility of the Neutrophil-to-Lymphocyte Ratio for Early Mortality Risk Stratification in Burn Injury Patients

Kamau O. Wanjala

Correspondence: wanjala.ko@mu.ac.ke

Country: Kenya

Abstract

Background: Severe burn injury is accompanied by a pronounced systemic inflammatory response and immune dysregulation. Identifying accessible laboratory markers for the early assessment of in-hospital mortality risk remains a priority in burn care.

Objectives: To assess the prognostic value of the neutrophil-to-lymphocyte ratio (NLR) on admission for stratifying the risk of in-hospital mortality in patients with burns.

Methods: This prospective cohort study included 180 patients with burn injuries (affected area > 15% total body surface area). The NLR was calculated from absolute neutrophil and lymphocyte counts in complete blood counts obtained upon admission. Thirty-day mortality, total body surface area (TBSA) burned, and burn severity index were recorded.

Results: In-hospital mortality was 14.4% (n = 26). In deceased patients, the NLR on admission was significantly higher compared to survivors (14.8 ± 4.2 vs. 6.2 ± 2.1 ; $p < 0.001$). ROC analysis demonstrated high prognostic accuracy for NLR (AUC = 0.88; 95% CI: 0.82–0.94). An admission NLR threshold > 10.5 was associated with a 5.4-fold increase in 30-day mortality risk (OR = 5.42; 95% CI: 2.15–13.66; $p < 0.001$), independent of age and TBSA.

Conclusions: The admission neutrophil-to-lymphocyte ratio (NLR) is a simple and highly informative marker for early mortality risk stratification in burn patients.

Keywords: Burn trauma; neutrophil-to-lymphocyte ratio; NLR; mortality; systemic inflammatory response.

To access the full-text, please contact the authors or the editorial board at editor@ajms.site

Original Article

AJMS, 2026; 12 (4): 74-83

Benchmarking Prognostic Models for Mortality Prediction in Patients With Burn Injuries

Elisabeth Q. Luka, Lenorari Paximont

Correspondence: eluka@tum.de

Country: Kenya

Abstract

Background: For predicting outcomes in burn injuries, the Baux, ABSI (Abbreviated Burn Severity Index), and Ryan scores are traditionally used; however, their accuracy may vary significantly in modern intensive care settings.

Objectives: To conduct a comparative validation and benchmarking of the Baux, Revised Baux (rBaux), ABSI, and Ryan prognostic models in predicting in-hospital mortality in burn patients.

Methods: We analyzed clinical data from 310 patients hospitalized in the burn unit. For each patient upon admission, scores were calculated using the Baux, rBaux, ABSI, and Ryan models. Prognostic accuracy was evaluated by the area under the ROC curve (AUC), as well as measures of calibration and discrimination.

Results: Overall in-hospital mortality was 11.9% (n = 37). The rBaux score demonstrated the highest prognostic accuracy (AUC = 0.93; 95% CI: 0.89–0.97), surpassing the traditional Baux score (AUC = 0.86; p = 0.003). For the ABSI score, the AUC was 0.91 (95% CI: 0.86–0.95), and for the Ryan model, it was 0.84 (95% CI: 0.78–0.89). Including inhalation injury in the rBaux model provided the most accurate mortality risk calibration in extensive burns (> 40% TBSA).

Conclusions: The Revised Baux (rBaux) model and the ABSI score demonstrate superior prognostic performance in predicting mortality in burn patients and are recommended for routine clinical use.

Keywords: Burn trauma; prognostic models; Baux scale; ABSI; hospital mortality.

To access the full-text, please contact the authors or the editorial board at editor@ajms.site

Original Article

AJMS, 2026; 12 (4): 84-97

**Diagnostic Value of Hyperbilirubinemia as a Biomarker for Appendiceal Perforation in
Acute Appendicitis**

Elliott Z. Roland, Jolie X. Gael

Correspondence: eroland@cnrs.fr

Country: Austria

Abstract

Background: Early diagnosis of perforation and gangrene of the vermiform appendix is critically important for the prevention of severe intra-abdominal complications; however, traditional markers do not always reliably identify appendiceal wall destruction.

Objectives: To evaluate the diagnostic value of hyperbilirubinemia as a marker of disease severity and appendix wall destruction in acute appendicitis.

Methods: This study included 240 patients who underwent surgery for acute appendicitis. Patients were divided into two groups: uncomplicated appendicitis (catarrhal / phlegmonous; n = 152) and complicated/destructive appendicitis (gangrenous / perforated; n = 88). Total and direct bilirubin levels were determined for all patients upon admission.

Results: Elevated total bilirubin ($> 20.5 \mu\text{mol/L}$) was detected in 56 (63.6%) patients with destructive appendicitis compared to 18 (11.8%) patients with uncomplicated forms ($p < 0.001$). The mean total bilirubin level in perforated appendicitis was $28.4 \pm 6.2 \mu\text{mol/L}$ versus $14.2 \pm 3.1 \mu\text{mol/L}$ in uncomplicated appendicitis ($p < 0.001$). Hyperbilirubinemia demonstrated a sensitivity of 63.6%, a specificity of 88.2%, and a positive predictive value of 75.7% for appendix destruction (OR = 12.8; 95% CI: 6.4–25.6).

Conclusions: Hyperbilirubinemia on admission is a significant biomarker for appendiceal wall destruction and perforation resulting from endotoxemia and bacterial translocation.

Keywords: Acute appendicitis; hyperbilirubinemia; perforation; destructive appendicitis; biomarkers.

To access the full-text, please contact the authors or the editorial board at editor@ajms.site