Clinical implications of HIDA cholescintigraphy and ultrasound in the diagnosis of acute cholecystitis

Limael E Rodriguez, Santaliz-Ruiz, Luis E, Del La Torre-Bisot, Gabriel, Martinez-Trabal, Jorge L, Bolanos-Avila and Guillermo
St. Luke’s Memorial Hospital-Ponce School of Medicine and Health Sciences, USA

Introduction: In this study, we present our diagnostic and clinical outcomes in patients who were admitted with suspected AC that received diagnostic workup with US ± HIDA.

Methods: Between January 2013 to July 2014, 63 patients were admitted through ER with a preliminary diagnosis of AC. All patients received US±HIDA scan after admission, and were treated with laparoscopic or open cholecystectomy (all gallbladders were sent to pathology for final diagnosis). Patients with pancreatitis and/or cholangitis (n=3) were excluded from the study. Primary end points included: 1) diagnostic test reliability (i.e. sensitivity, specificity, etc.) of US and HIDA scan for AC, respectively, and 2) outcome measures (complications, hospital stay, cost effectiveness, etc.).

Results: The mean age at time of first encounter was 48 (15-73) years, with females accounting for 66.7% of the cases. All (100%) of the patients received US at presentation, and 19/60 (31.7%) received US+HIDA. Mean time of admission to HIDA scan was 1.5 (0-4) days. Laparoscopic cholecystectomy was performed in 41/60 (68.3%) and open cholecystectomy in 19/60 (31.7%) of the patients. Of the cases that required an open approach, 11/19 (57.9%) were positive for AC with HIDA scan (p=0.007). Final pathology established acute versus chronic cholecystitis in 28/60 (46.7%) and 32/60 (53.3%) of the patients, respectively. In terms of AC, US had a sensitivity and specificity of 31% and 83.8%, respectively. HIDA scan had a sensitivity and specificity of 92.3% and 83.3%, respectively. Admission to surgery time was 3 versus 1.6 days in patients who received US+HIDA versus US alone (p=0.001), and total length of stay (LOS) was 6.4 days versus 3.6 days, respectively (p=0.005). The total cost per patient was approximately $4,313 vs. $2,311 for the latter groups, respectively (p=0.004).

Conclusion: In our single center review, HIDA scan was superior to US as a diagnostic study, and is indicated when US findings are equivocal and AC cannot be ruled out. Delayed HIDA scanning after admission had a significant impact on outcome measures. There was a positive correlation between patients that were diagnosed with acute cholecystitis by HIDA and need for open cholecystectomy. Early HIDA scan at first encounter in ER may effectively facilitate decision making, and reduce time to surgery, LOS, overall costs, and improve outcomes in the setting of AC.

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