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Diagnosis and Localization of Insulinoma in Thai Patients: Performance of Endoscopic Ultrasonography Compared to Computed Tomography and Magnetic Resonance Imaging

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Abstract

Background: Endoscopic ultrasonography (EUS) has now been accepted as the most sensitive method to localize insulinoma. However, the data in Thai patients is lacking and the diagnostic performances of EUS comparing to computed tomography (CT) and magnetic resonance imaging (MRI) is unknown.
Material and Method: Retrospective analysis of 19 patients with recurrent hypoglycemia suggestive of insulinoma who underwent EUS, CT and MRI for tumor localization during 2007 to 2012. Surgical pathology or long-term follow-up was used as gold standard.
Results: There were 14 patients with 15 insulinoma lesions and 5 patients without insulinoma (2 nesidioblastosis and 3 without lesion). EUS, CT and MRI were performed in 19, 11 and 10 patients, respectively. EUS could detect insulinoma with sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) of 93%, 80%, 93% and 80%, respectively. The corresponding performances for CT were 78%, 100%, 100%, 50% and MRI were 71%, 33%, 71%, 33%, respectively. In patients with positive CT, subsequent EUS did not change diagnosis. However, EUS was able to detect insulinoma in 50% of patients with negative CT. On the other hand, in patients with positive MRI, EUS changed and corrected the diagnosis of MRI in 29% and was able to detect insulinoma in 67% of patients with negative MRI. EUS, CT and MRI correctly localized insulinoma in 87%, 67% and 57%, respectively. The most common incorrect localization was between pancreatic body and tail.
Conclusion: EUS has the best diagnostic performance in detection and localization of insulinoma. CT is less sensitive but very specific, therefore positive CT may preclude the need of EUS. MRI, however, is less sensitive and specific than CT. Either positive or negative MRI may require further EUS.

Keywords: Computed tomography, Endoscopic ultrasound, Insulinoma, Localization, Magnetic resonance imaging, Thai

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