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Editorial
Quantitative Hepatobiliary Scintigraphy

Suspected partial obstructive sphincter-of-Oddi (SO) dysfunction due to stenosis or dyskinesia is a common diagnostic consideration in patients with unexplained biliary-like upper abdominal pain. Generally, most of these patients have symptoms after a cholecystectomy (postcholecystectomy syndrome). Potentially useful diagnostic tests emphasized during the past decade include SO manometry, fatty-meal sonography, and quantitative hepatobiliary scintigraphy (QHBS).

In this issue, Drane and coworkers describe a study that evaluates QHBS in 31 patients judged to be normal and in 10 patients with suspected SO dysfunction. In their study, most of the controls had an intact gallbladder although the exact percentage is not given. In several previous studies that evaluated quantitative or semiquantitative hepatobiliary scintigraphy in patients with suspected partial common bile duct obstruction, investigation was limited to patients with a cholecystectomy because of the concern that a normal gallbladder might act as a reservoir that obscured the findings of distal common bile duct obstruction (*1–4*). Therefore, the precise utility of the pooled control values given by Drane et al. is not clear. Evidence is not provided to show that normal values for noncholecystectomized and cholecystectomized subjects are comparable.

Another innovative approach by Drane et al. is the use of sincalide in an attempt to develop an augmented QHBS stress test that might unmask abnormalities not shown by standard methods. Regrettably, however, the authors used a small bolus dose of sincalide (1.5 μg i.v.) that would provide only a short-lived stimulus. Because of their short half-life, bolus doses of CCK or sincalide have a biologic effect for only several minutes whereas a sustained effect of 30 min or more is needed for maximal emptying of the gallbladder or to maximize the enterohepatic cycling of bile acids and hepatic bile flow. Thus, the design of this study does not allow any conclusions about the utility of sincalide augmentation for QHBS. One of the rationales for the use of CCK or CCK-like agents during QHBS is the notion that an important type of SO dyskinetic is paradoxical contraction of the SO in response to CCK. This variant of SO dyskinesia, however, is uncommon among SO dyskinesia patients. The most common variant of SO dyskinesia is sphincter spasm

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wherein abnormally elevated basal SO pressure is substantially decreased by CCK (*5*) as well as other agents, such as glucagon or amyl nitrite, that normally relax SO smooth muscle.

When evaluating patients with suspected SO dysfunction, a major difficulty is deciding "truth," that is, which patients are true-positive and which are true-negative. In some earlier studies, the findings from SO manometry have been used as the "gold standard" for making these judgments (*2,6*). In the investigation by Drane et al., only four out of nine patients studied by SO manometry had manometric abnormalities suggesting SO dysfunction. Such small numbers of true-positives and the total number of patients do not provide an adequate sample size for meaningful evaluation of the sensitivity and specificity of QHBS as a diagnostic test or the correlation between the manometric and isotope methods.

Preliminary evidence at present suggests that QHBS has a 70%–90% sensitivity for detecting patients with obstructive SO dysfunction (*1, 2,7*) with a lower sensitivity for detecting common duct stones (*7*). False-positive results may be as high as 15%. False-positive results may also be encountered in patients with liver disease (*1,2*). Although patients with verified SO dysfunction are difficult to acquire, investigations of large numbers of patients remains needed if a reliable assessment of QHBS is to be obtained in this group of patients. Hopefully, noninvasive tests such as QHBS and fatty-meal sonography (*8,9*) will prove adequate to evaluate such patients satisfactorily rather than having to resort to SO manometry which is difficult, invasive, and not widely available.

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