Precision of the gallbladder ejection fraction obtained with Tc-99m-pyridoxyl-5-methyl-tryptophan (99mTc-PMT) hepatobiliary scintigraphy as compared with the contraction ratio in three-dimensional computed tomography

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The gallbladder ejection fraction (GBEF) obtained with Tc-99m-pyridoxyl-5-methyl-tryptophan (99mTc-PMT) hepatobiliary scintigraphy has been used as a parameter of gallbladder function. To determine the accuracy of GBEF, the relationship with the contraction ratio of the gallbladder (GBCR) obtained with three-dimensional helical computed tomography (3D-CT) was studied. Patients and methods: A normal volunteer, 8 patients suffering from cholecystolithiasis and a patient with gallbladder dyskinesia were examined. The percent initial dose (PID) for the gallbladder and GBEF with hepatobiliary scintigraphy were used to compare the volume of the gallbladder and GBCR which was measured by 3D-CT. Results: The PID of the gallbladder was correlated with the volume of the gallbladder by 3D-CT (r = 1.000X - 1.818, r = 0.928). GBEF was correlated well with GBCR by 3D-CT (r = 0.916X + 6.295, r = 0.975). Conclusions: The PID of the gallbladder obtained with hepatobiliary scintigraphy may be a good indicator of the volume of the gallbladder. The accuracy of GBEF was confirmed by comparison with 3D-CT examination. GBEF is considered a useful parameter of pathophysiological gallbladder function.

Key words: gallbladder emptying, Tc-99m-pyridoxyl-5-methyl-tryptophan (99mTc-PMT) hepatobiliary scintigraphy, ejection fraction of the gallbladder, helical CT, three dimensional computed tomography