

Washout rates of Tc-99m tetrofosmin in asymmetric septal hypertrophy

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The aim of this study was to evaluate the washout rate of Tc-99m tetrofosmin in asymmetric septal hypertrophy (ASH). As Tc-99m tetrofosmin accumulation and retention depend on sarcolemmal and/or mitochondrial function, the presence or absence of abnormalities in the washout rate of Tc-99m tetrofosmin could provide information about sarcolemmal and/or mitochondrial damage noninvasively. The study group consisted of 18 patients with ASH and 10 healthy subjects. After intravenous injection of 1,110 MBq (30 mCi) Tc-99m tetrofosmin, tomographic images were obtained 1 hour later (early image) and again 4 hours later (delayed image). Using tomographic images, the distribution and washout of tetrofosmin in the left ventricle was examined quantitatively. Short-axis SPECT images were divided into 5 segments (anterior, septal, lateral, inferior wall and apex) in early and delayed images, and the mean radioactivity counts were measured in each segment by drawing regions of interest. Washout rates of apex, anterior, septal, lateral and inferior walls were 0.34 ± 0.06 , 0.37 ± 0.07 , 0.36 ± 0.07 , 0.33 ± 0.08 , 0.33 ± 0.07 in ASH and 0.20 ± 0.05 , 0.23 ± 0.05 , 0.22 ± 0.03 , 0.21 ± 0.03 , 0.22 ± 0.03 in the normal group, respectively. In ASH, the washout rates of all myocardial segments were significantly increased as compared to those of the normal controls ($p < 0.05$). The findings of the present study suggest that there could be dysfunction of sarcolemma and/or mitochondria in the entire left ventricle which would be important in the pathophysiology of this disease. Also our study revealed that Tc-99m tetrofosmin washout was higher in NYHA II–III patients compared to NYHA I patients and the degree of Tc-99m tetrofosmin washout corresponded well with the thickness of the interventricular septum and posterior walls.

Key words: Tc-99m tetrofosmin, washout rate, asymmetric septal hypertrophy