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A STUDY OF ABNORMAL PERFUSION IN HYPERTROPHIC CARDIOMYOPATHY BY EXERCISE THALLIUM-201 MYOCARDIAL SCINTIGRAPHY. T.Goto, Y.Kobayashi, T.Miyashita, Y.Naito, T.Watanabe, Y.Goto, Y.Nagai, I.Yamasawa, C.Ibukiyama, H.Shiroiwa and H.Murayama. Tokyo Medical College, Tokyo.

To determine the meaning of reversible defect (RD), fixed defect (FD) and reverse redistribution (RR) on the exercise myocardial scintigraphy of non-obstructive HCM 21 patients with 10 asymmetric septal hypertrophy (ASH), 4 apical hypertrophy (AH) and 7 diffuse hypertrophy (DH) were examined. RD was observed frequently in the septum, mostly ASH. FD was noted frequently in the inferoposterior wall, except 2 in hypertrophic septum. RR was found in posterior and lateral walls, but the washout rate of lateral wall was normal. All the normal images were of AH. RD refers to relative ischemia due to hypofunction of coronary dilatation and functional stenosis in hypertrophic myocardium, FD due to apparent defects in less hypertrophic cardiac muscle, although not all of were so, and RR of the lateral wall due to the redistribution effect of hypertrophic septum.

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ASSESSMENT OF REGIONAL WASHOUT RATE ON HCM USING STRESS Tl-201 MYOCARDIAL SCINTIGRAPHY. Y.Igarashi, A.Genda, S.Mizuno, A.Nakayama, S.Nunoda, R.Takeda, H.Bunko, K.Nakajima, A.Tada and K.Hisada. Kanazawa University. Kanazawa.

To study on the Tl-201 washout rate in 28 patients with HCM, they were divided into 4 groups according to angiographical distribution of disproportional hypertrophy, and were performed exercise testing with myocardial scintigraphy.

Result: 1. In IVS group, the mean value of the Tl-201 percent uptake on the early curve decreased more than those in the other 3 HCM-groups and control group.

2. (1) The mean value of the Tl-201 washout rate in the 4 HCM-groups showed decrease compared with control group (49.8%), and that in IVS-Ap. Ant. group showed notable decrease (35.8%). (2) With reference to the segmental distribution of washout rate on LAO 60°-Image; (a) The mean washout rates of posterolateral segments in the 3 HCM-groups except for IVS group showed significant decrease compared with that in control group, although the mean wall thickness of the segment did not show significant difference compared with that in control group. (b) The mean washout rates in markedly disproportional hypertrophic segments showed significant decrease compared with the other segments in each HCM-group.

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Study of Washout rate (WR) in Hypertrophic Cardiomyopathy (HCM) by exercise myocardial scintigraphy. T.Tsuda, M.Urume, K.Kunio, K.Ojima, S.Hayashi, K.Watanabe, Y.Aizawa, Y.Arai, A.Shibata, M.Kimura\*, I.Odano\*, K.Sakai\*, H.Hama\*\* and T.Mitani\*. The First Department of Internal Medicine and Department of Radiology\*, Niigata University School of Medicine, Kido Hospital\*\*.

Recently, reduced coronary reserve in HCM is reported by invasive and noninvasive methods. Last year, we reported that the defect and redistribution in HCM were showed as same as coronary artery disease. This time, we assessed WR in HCM that was used in diagnosis of coronary artery disease and examined the relationship between WR and redistribution. Subjects: Twelve normal persons and eighteen patients in HCM were compared. Methods: WR by exercise myocardial scintigraphy was calculated in LAO45° view. The end point of exercise was symptom-limited. The normal lower border of WR was (Mean - 2SD) of that in normal persons. Results: Reduced WR was showed in 16 segments of 7 patients (39%) and in 6 segments of 4 patients in accordance with redistribution. Max heart rate at end point in HCM was lower than normal and that in HCM with reduced WR was lower than in HCM with normal WR. We concluded that the reduced WR in HCM was caused by the regional ischemia. Besides, the effect of exercise workloads must be considered.

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MECHANISMS FOR PERFUSION DEFECT IN HCM.

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To investigate the mechanisms for persistent or transient perfusion defect (PD or TD), washout rate (WR) was calculated in 46 patients with HCM and 8 controls who had normal coronary arteriogram. In the exercise Tl-201 myocardial scintigram, 7 patients showed PD, 12 TD and 12 had reversed perfusion defect (RD) in developing perfusion defect in the non-hypertrophied lateral segments in the 4 hrs image. WR in healthy controls was  $48 \pm 7\%$ . In patients with HCM, TD segment exhibited a significantly low WR ( $38 \pm 7\%$ ), indicating impaired myocardial perfusion possibly due to small vessel coronary disease. PD segment did not show a decreased WR ( $49 \pm 7\%$ ), but had advanced fibrosis in the biopsy. Hence PD would be a sign of advanced myocardial damage. WR in the lateral RD segments ( $53 \pm 8\%$ ) were higher than in controls, while it was normal in the hypertrophied septal segment ( $47 \pm 8\%$ ). These findings imply that decreased coronary reserve during exercise stress in the contralateral hypertrophied segments and a compensatory increase in coronary flow in the lateral RD segments would be a possible mechanism for RD. Small vessel coronary disease would be an underlying mechanism responsible for these variable patterns of impaired myocardial perfusion in HCM.