

## 비대칭적 중격비후를 가진 비후성 심근증 환자의 디피리다몰 부하 Tl-201 SPECT

원경숙<sup>3</sup> · 문대혁<sup>1</sup> · 류진숙<sup>1</sup> · 강덕현<sup>2</sup> · 박성욱<sup>2</sup>  
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### Dipyridamole Tl-201 SPECT in Hypertrophic Cardiomyopathy with Asymmetric Septal Hypertrophy : Characteristics of Perfusion Abnormality and Correlation with Clinical Parameters

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#### ABSTRACT

**Background and Objectives :** Exercise myocardial perfusion scans in patients with hypertrophic cardiomyopathy have shown reversible perfusion abnormalities with unknown clinical significance. We performed this study to characterize dipyridamole Tl-201 SPECT imaging and correlate with clinical findings in patients with hypertrophic cardiomyopathy. **Methods :** Tl-201 SPECT was performed in 25 patients of hypertrophic cardiomyopathy with asymmetric septal hypertrophy and 20 normal controls after dipyridamole infusion (0.56 mg/kg). Myocardial wall was divided into 8 segments. Tl-201 uptake and relative washout rate were calculated. **Results :** Tl-201 SPECT showed significantly lower Tl-201 uptake in basal septal ( $81.3 \pm 3.4\%$  vs  $78.2 \pm 6.4\%$ ,  $p < 0.05$ ) and apical septal wall on stress ( $88.2 \pm 4.7\%$  vs  $83.9 \pm 6.5\%$ ,  $p < 0.05$ ) and higher apical septal ( $86.6 \pm 5.2\%$  vs  $89.2 \pm 3.1\%$ ,  $p < 0.05$ ) and apical anterior wall uptake ( $88.7\% \pm 4.0\%$  vs  $91.4 \pm 4.9\%$ ,  $p < 0.05$ ) on redistribution images in patients with hypertrophic cardiomyopathy. Basal lateral wall uptake of hypertrophic cardiomyopathy was significantly lower than normal control on both stress ( $84.7 \pm 3.5\%$  vs  $81.2 \pm 7.3\%$ ,  $p < 0.05$ ) and redistribution images ( $85.0 \pm 5.8\%$  vs  $76.8 \pm 7.2\%$ ,  $p < 0.0001$ ). The septum/lateral uptake ratio of patients on rest image was significantly higher than that of normal controls ( $0.98 \pm 0.07$  vs  $1.07 \pm 0.10$ ,  $p < 0.001$ ). There was no difference in age, sex, symptom, cardiac medication and the parameters of 2D-echo including left ventricular outflow obstruction between subgroups of normal vs abnormal washout in patients with hypertrophic cardiomyopathy. **Conclusion :** Dipyridamole Tl-201 myocardial SPECT shows reduced

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coronary vasodilatory capacity of myocardium, especially septum in patients with hypertrophic cardiomyopathy. High septal/lateral uptake ratio on redistribution image may be a characteristic finding. However, no correlation between abnormal Tl-201 washout and clinical findings was observed. (**Korean Circulation J 1999;29(5):465-472**)

**KEY WORDS** : Hypertrophic cardiomyopathy · Tl-201 SPECT · Dipyridamole.

서론

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(88.2 ± 4.7% vs 83.9

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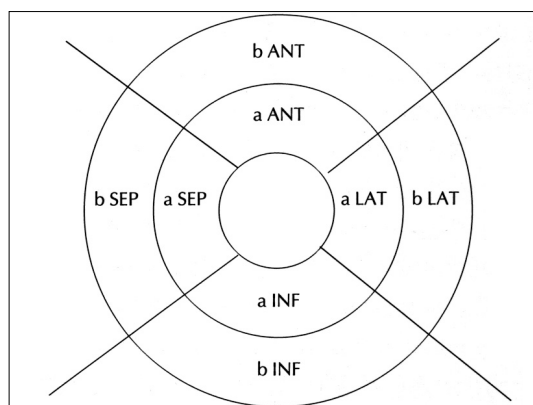
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**Fig. 1.** The diagram of bull's eye polar map. Myocardium was divided into eight segments and analyzed for relative thallium uptake and washout rate (%). ANT : anterior wall, SEP : septum, INF : inferior wall, LAT : lateral wall, b : basal, a : apical.

**Table 1.** Normalized dipyridamole stress myocardial thallium uptake in normal control (n=20) and patients with hypertrophic cardiomyopathy (n=25)

	Normal control*	HCM with ASH*	p value
bANT	86.6 ± 4.9	83.7 ± 6.3	NS
aANT	88.6 ± 4.0	86.8 ± 4.7	NS
bSEP	81.3 ± 3.4	78.2 ± 6.4	<0.05
aSEP	88.2 ± 4.7	83.9 ± 6.5	<0.05
bINF	74.4 ± 6.2	72.4 ± 7.7	NS
aINF	80.8 ± 6.4	77.7 ± 8.8	NS
bLAT	84.7 ± 3.5	81.2 ± 7.3	<0.05
aLAT	88.7 ± 3.7	88.8 ± 5.0	NS

(\* : mean ± standard deviation, ANT : anterior wall, SEP : septum, INF : inferior wall, LAT : lateral wall, b : basal, a : apical, HCM with ASH : hypertrophic cardiomyopathy with asymmetric septal hypertrophy)

14)

15)

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가<sup>17)</sup>

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PET (positron emission tomography)

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PET

SPECT

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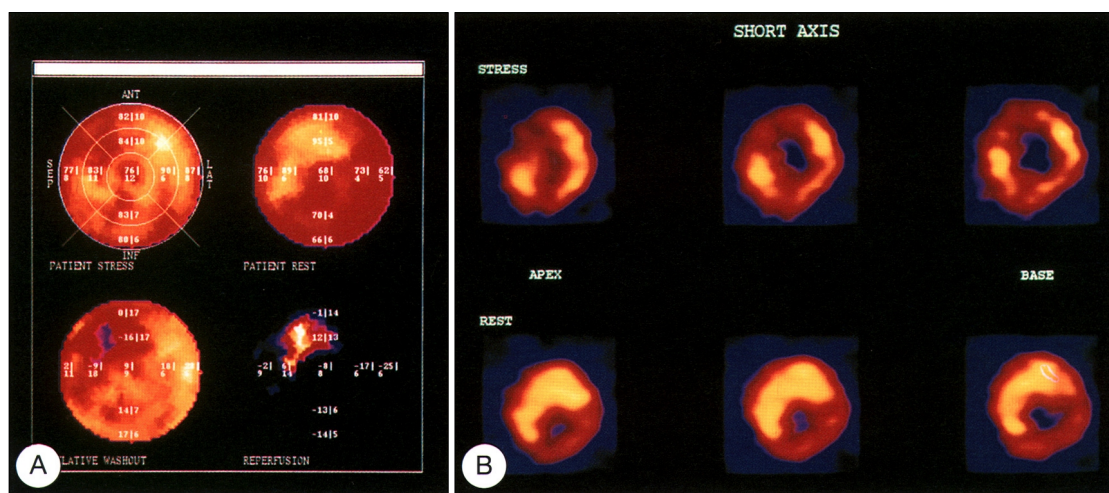
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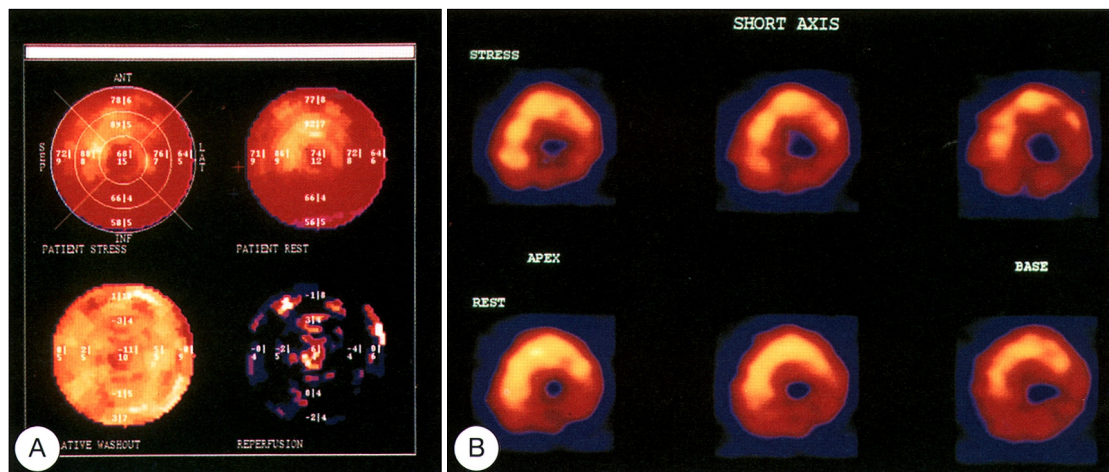
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**Fig. 2.** Dipyridamole stress thallium SPECT imaging with abnormal thallium washout in patient with hypertrophic cardiomyopathy. The polar map (Fig. 2A) and tomographic images (Fig. 2B) of stress and redistribution show mildly decreased uptake of septum and anterior wall on stress and increased uptake on redistribution images resulting in abnormal washout on that area.



**Fig. 3.** Dipyridamole stress thallium SPECT imaging with normal thallium washout in patient with hypertrophic cardiomyopathy. The polar map (Fig. 3A) and tomographic images (Fig. 3B) of stress and redistribution show mildly decreased uptake of lateral and inferior wall on stress and redistribution image, and normal washout.

**Table 3.** Comparison of clinical findings between 12 normal and 13 abnormal thallium washout in patients with hypertrophic cardiomyopathy

	Abnormal washout (n = 13)	Normal washout (n = 12)	p value
Age (mean)	50.8 ± 16.0	55.1 ± 14.4	NS
Sex (M : F)	9 : 4	6 : 6	NS
Chest pain			NS
Typical	3	2	
Atypical	5	9	
Dyspnea	8	9	NS
Syncope	5	2	NS
Verapamil	3	3	NS
LVOT obst	5	8	NS

(LVOT obst = left ventricular outflow tract obstruction,  
NS : not significant)

[illegible]



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