

Sequential change of BMIPP uptake with age in spontaneously hypertensive rat model

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Changes in myocardial perfusion and metabolism are often associated with myocardial hypertrophy, but there are few reports describing the serial assessment of fatty acid metabolism in hypertrophic myocardium. The aim of this study is to assess fatty acid metabolism serially in hypertrophic myocardium in spontaneously hypertensive rats (SHR) with ^{125}I -BMIPP, a branched fatty acid analog. *Methods:* SHR and Wistar-Kyoto rats (WKY) as the control were divided into 4 groups (12, 15, 18 and 51 weeks after birth). The heart was extracted 10 minutes after intravenous injection of ^{125}I -BMIPP and ^{201}Tl at the same time. The accumulation of each radiotracer in the myocardium was counted with a well gamma counter. In addition, ^{125}I -BMIPP uptake was corrected by ^{201}Tl uptake (B/T). *Results:* The heart weight/body weight ratio was significantly higher in SHR than that in WKY ($p < 0.001$). In SHR, this ratio increased up to 18 weeks (12 weeks; 0.266 ± 0.005 , 18 weeks; 0.281 ± 0.006 ; mean \pm SE, $p < 0.05$). The ^{125}I -BMIPP uptake tended to be significantly reduced in SHR (12 weeks; 2.373 ± 0.212 , 18 weeks; 1.380 ± 0.047 ; mean \pm SE, $p < 0.05$). Such a difference in BMIPP uptake was more evident when BMIPP uptake was corrected by Tl uptake (B/T), but no regional difference or heterogeneity of BMIPP distribution was observed in the hypertrophic myocardium in SHR. *Conclusion:* A change in fatty acid metabolism with age was observed in association with myocardial hypertrophy in this hypertensive rat model, which was well demonstrated with ^{125}I -BMIPP and ^{201}Tl .

Key words: hypertensive rat, myocardial hypertrophy, BMIPP, fatty acid metabolism