





多 8 对 12 支冠脉两者相比接近有显著统计学差异  $P=0.06$ 。这提示高血压心肌肥厚病人心脏表面的冠状动脉病变与肌内微血管病变有并存的倾向。值得进一步研究。

Brush 等<sup>[10]</sup>发现,在无冠状动脉病变或左室肥厚的高血压病人中,其起搏诱发的心绞痛是由心肌缺血引起。后者可能是由冠状动脉微循环阻力异常升高所致。本研究也发现,在 19 例灌注异常的高血压无心肌肥厚组中,冠状动脉造影正常 3 例。且这 3 例病人均有典型劳力性心绞痛,提示无心肌肥厚的高血压病人也可能伴有冠脉微血管异常。

有研究表明,高血压有或无心肌肥厚病人的冠脉扩张能力均下降。冠脉小支阻力增加。<sup>[11]</sup> Schwartzkopff 等<sup>[12]</sup>研究认为,冠脉扩张能力下降主要是由心肌内冠状小动脉重构和胶原纤维积聚所致。Lriarte 等<sup>[13]</sup>研究发现,无论  $^{201}\text{Tl}$  心肌灌注异常与否,高血压心肌肥厚病人的冠脉血流储备均较正常人为低。而  $^{201}\text{Tl}$  心肌灌注异常的心绞痛病人的冠脉血流储备降低更为明显。 $^{201}\text{Tl}$  摄取最少的心肌节段冠脉血流储备降低最为明显。<sup>[14]</sup> Iriarte 等<sup>[15]</sup>认为,运动  $^{201}\text{Tl}$  心肌灌注显像是识别高血压心肌肥厚病人心肌节段低灌注程度的较好方法。

上述研究表明,高血压心肌肥厚病人  $^{201}\text{Tl}$  心肌

灌注异常的发生率较高,灌注异常范围较大。其灌注异常既可由大冠状动脉病变引起,也可由肌内微血管病变引起。运动  $^{201}\text{Tl}$  心肌灌注断层显像是检测高血压心肌肥厚病人微血管心肌缺血较好的方法。

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显影图像由于衰减等因素的影响,侧壁、心底部等心肌节段显影效果不好。其次,由于采用弹丸式注射造影剂在心肌内的停留时间较短,故本研究只观察了心尖四腔切面的心肌灌注情况。不能从多个切面全面地观察心肌灌注。最新发展起来的相干成像技术 coherent contrast imaging, CCI 采用经外周静脉持续注射造影剂,可以从多个切面和角度来显示心肌灌注,并且能在观察心肌灌注的同时实时观察室壁的运动情况。本研究提示, MCE 可以区分正常存活及坏死心肌的灌注变化情况,可能成为临床评价存活心肌的新方法。

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