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封面文章

非缺血性扩张型心肌病(non-ischemic dilated cardiomyopathy, NIDCM)是在没有异常负荷或者显著冠状动脉病变的情况下以收缩功能障碍为特征、伴左心室或者双心室扩张的心肌疾病。NIDCM在心血管疾病中的发病率及死亡率中占有较大比例,心肌纤维化是不良预后的强有力的指标。心脏磁共振(cardiovascular magnetic resonance, CMR)晚期钆增强(late gadolinium enhancement, LGE)成为检测NIDCM心肌纤维化一种强大的非侵入的成像技术,但是由于部分患者对钆类对比剂的使用限制,心肌纤维化的诊断较为困难,使得探索可替代LGE对NIDCM纤维化进行评估的无对比剂注入、仅需基于平扫序列进行诊断的方法成为临床上的需求。

NIDCM患者心肌应变会发生显著的改变,其相对射血分数可以反映心肌的细微异常。心脏磁共振组织追踪技术(cardiovascular magnetic resonance feature tracking technology, CMR-FT)仅需基于心脏平扫的稳态自由进动(steady state free precession, SSFP)电影序列进行简单的后处理就可得出心肌的应变数值。由此作者提出:能否利用CMR-FT探讨左室心肌应变在无需对比剂的条件下对NIDCM心肌纤维化进行诊断?

该研究中使用西门子3.0 T CMR扫描仪主要对33例NIDCM患者进行平扫+增强扫描,利用CMR-FT对NIDCM患者电影序列进行简单的后处理得出左室心肌应变参数,用SPSS统计软件进行统计处理,对左室应变对心肌纤维化进行诊断价值的分析。

基于以上方法,研究结果能否得出利用CMR-FT评估NIDCM左室心肌应变对心肌纤维化具有诊断价值,如果有,究竟具体是哪些指标、如何诊断以及其诊断价值如何?该研究正在进行下一步的探索,研究详见内文第6~11页。

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Non-ischemic dilated cardiomyopathy (NIDCM) is a myocardial disease characterized by systolic dysfunction and left ventricular or biventricular dilation without abnormal load or significant coronary artery disease. The incidence rate of NIDCM is high in cardiovascular diseases. Myocardial fibrosis is a powerful indicator of poor prognosis. Late gadolinium enhancement (LGE) has become a powerful non-invasive imaging technique for detecting myocardial fibrosis in NIDCM. However, due to the limitation of gadolinium contrast agent in some patients, the diagnosis of myocardial fibrosis is difficult, which makes it a clinical need to explore a diagnostic method that can replace LGE in the evaluation of NIDCM fibrosis without contrast agent injection and only based on plain scan sequence.

Compared with ejection fraction, myocardial strain changes significantly in NIDCM patients, which can reflect the subtle abnormalities of myocardium. Cardiovascular magnetic resonance feature tracking technology (CMR-FT) only needs simple post-processing based on the steady state free precession (SSFP) function sequence to obtain the myocardial strain value. Therefore, can CMR-FT be used to investigate left ventricular myocardial strain and diagnose myocardial fibrosis in NIDCM without contrast agent?

In this study, Siemens 3.0 T CMR scanner was used to scan 33 patients with NIDCM. CMR-FT was used to post process the film sequence of NIDCM patients to obtain the left ventricular myocardial strain parameters. SPSS statistical software was used for statistical processing to analyze the diagnostic value of left ventricular strain on myocardial fibrosis.

Based on the above methods, can we conclude that CMR-FT assessment of left ventricular myocardial strain in NIDCM has diagnostic value for myocardial fibrosis? If so, what are the specific indicators, how to diagnose and what is the diagnostic value? This study is in the next step of exploration. See text page 6-11.