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超声评分在膝关节类风湿关节炎中的临床意义*

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[摘要] **目的** 探讨膝关节类风湿关节炎超声诊断的价值及超声评分系统的临床意义。**方法** 收集 2013 年 7 月至 2015 年 12 月丽水市两家三级甲等综合医院膝关节类风湿关节炎患者 500 例作为观察组,另收集同期健康成人 500 例作为对照组。观察两组膝关节滑膜厚度、增生滑膜内血管检出率、超声评分、类风湿性关节炎疾病活动度评分、C 反应蛋白、红细胞沉降率、髌上囊积液、髌下囊积液、关节腔积液、膝关节软骨和骨表面情况。**结果** 与对照组比较,观察组膝关节滑膜厚度 $[(0.50 \pm 0.19) \text{cm vs. } (0.13 \pm 0.05) \text{cm}, P=0.000]$ 、髌上囊液体深度 $[(0.62 \pm 0.27) \text{cm vs. } (0.23 \pm 0.05) \text{cm}, P=0.000]$ 、髌下囊液体深度 $[(0.58 \pm 0.12) \text{cm vs. } (0.21 \pm 0.04) \text{cm}, P=0.000]$ 、关节腔液体深度 $[(0.48 \pm 0.28) \text{cm vs. } (0.12 \pm 0.08) \text{cm}, P=0.000]$ 、红细胞沉降率 $[(43.29 \pm 12.58) \text{mm/h vs. } (12.95 \pm 4.39) \text{mm/h}, P=0.000]$ 、C 反应蛋白水平 $[(8.95 \pm 3.29) \text{mg/L vs. } (3.29 \pm 1.54) \text{mg/L}, P=0.000]$ 、增生滑膜内血管检出率 $(84.20\% \text{ vs. } 13.00\%, P=0.000)$ 均明显增加。且超声评分与类风湿性关节炎患者类风湿性关节炎疾病活动度评分、C 反应蛋白水平、红细胞沉降率、髌上囊液体深度、髌下囊液体深度和关节腔液体深度均呈正相关 $(r=0.583, 0.258, 0.383, 0.219, 0.228, 0.248, \text{均 } P<0.05)$ 。**结论** 超声在类风湿性关节炎中具有良好的诊断价值,超声评分系统可以较好地反映患者的疾病严重程度。

[关键词] 膝关节;关节炎,类风湿;超声检查**[中图分类号]** R445.1**[文献标识码]** A**[文章编号]** 1671-8348(2017)21-2923-04

Clinical significance of ultrasonic scoring system in rheumatoid knee arthritis*

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[Abstract] **Objective** To investigate the diagnostic values of ultrasound in rheumatoid knee arthritis and the clinical significance of ultrasonic scoring system. **Methods** From July 2013 to December 2015, 500 cases of patients with rheumatoid knee arthritis in two grade A class 3 hospitals of Lishui City were collected as the observation group and contemporaneous 500 healthy adults were collected as the control group. The knee joint synovial thickness, vascular detection rate in hyperplasia synovium, ultrasound score, rheumatoid arthritis disease activity score, erythrocyte sedimentation rate (ESR), C reactive protein (CRP), suprapatellar bursa effusion, infrapatellar bursa effusion, joint effusion, knee joint cartilage and bone surface were observed in the two groups. **Results** Compared with the control group, the observation group got a significant increase in knee joint synovial thickness $[(0.50 \pm 0.19) \text{cm vs. } (0.13 \pm 0.05) \text{cm}, P=0.000]$; depth of suprapatellar bursa fluid $[(0.62 \pm 0.27) \text{cm vs. } (0.23 \pm 0.05) \text{cm}, P=0.000]$; depth of infrapatellar bursa fluid $[(0.58 \pm 0.12) \text{cm vs. } (0.21 \pm 0.04) \text{cm}, P=0.000]$; joint fluid depth $[(0.48 \pm 0.28) \text{cm vs. } (0.12 \pm 0.08) \text{cm}, P=0.000]$; ESR $[(43.29 \pm 12.58) \text{mm/h vs. } (12.95 \pm 4.39) \text{mm/h}, P=0.000]$; CRP level $[(8.95 \pm 3.29) \text{mg/L vs. } (3.29 \pm 1.54) \text{mg/L}, P=0.000]$; vascular detection rate in hyperplasia synovium $(84.20\% \text{ vs. } 13.00\%, P=0.000)$. Moreover the ultrasound score was positively corrected with rheumatoid arthritis disease activity score, CRP level, ESR, suprapatellar bursa fluid depth, infrapatellar bursa fluid depth and joint fluid depth in the patients with rheumatoid arthritis $(r=0.583, 0.258, 0.383, 0.219, 0.228, 0.248; P<0.05)$. **Conclusion** Ultrasound has good diagnostic value in the patients with rheumatoid arthritis, and the ultrasonic scoring system can better reflect the severity of the disease.

[Key words] knee joint; arthritis, rheumatoid; ultrasonography

类风湿关节炎是疼痛性的慢性炎性关节疾病,可导致严重骨骼改变及受累关节破坏^[1-2]。类风湿关节炎患者即使临床症状有所缓和,其亚临床炎症可能持续存在^[3-4]。临床早期诊断对后续病情的缓解及判断非常重要^[5]。常规 X 射线摄影技术是进展性关节损伤常用的影像学诊断技术,但是其对软组织病变和早期侵蚀性骨病变不敏感^[6-7]。超声成像不仅能发现早期软组织炎性病变(如滑膜炎、腱鞘炎和滑囊炎),还可以显示关节炎的早期骨侵蚀性病灶^[8-10]。研究表明,超声和磁共振成像(MRI)具有良好的一致性^[11-12]。退变性和炎症性关节疾病以

进行性关节破坏为特征,有效的、可重复的测量有助于及时掌握患者的病变情况,其中超声的半定量评估得到越来越多的关注,但目前国内对膝关节尚缺乏具体评分系统。

1 资料与方法

1.1 一般资料 2013 年 7 月至 2015 年 12 月收集丽水市人民医院与丽水市中心医院收治的膝关节类风湿性关节炎患者,膝关节类风湿性关节炎诊断标准^[13]:(1)晨僵;(2)至少 1 个关节活动时疼痛或压痛;(3)1 个以上关节肿胀;(4)另 1 个关节肿胀,两个关节肿胀时间间隔不超过 3 个月;(5)对称性肿胀;(6)

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2.3 膝关节超声评分在评价患者疾病严重程度中的价值 观察组超声评分为 (12.48 ± 4.39) 分,类风湿关节炎疾病活动度评分为 (4.10 ± 1.47) 分。Pearson 线性相关性分析显示,超声评分与患者类风湿关节炎疾病活动度评分($r = 0.583, P = 0.000$)、C 反应蛋白水平($r = 0.258, P = 0.005$)、红细胞沉降率($r = 0.383, P = 0.000$)、髌上囊液体深度($r = 0.219, P = 0.015$)、髌下囊液体深度($r = 0.228, P = 0.012$)和关节腔液体深度($r = 0.248, P = 0.008$)均呈正相关。

3 讨 论

作为一种慢性退行性病变,膝关节类风湿关节炎主要表现为局部的慢性炎症,为自身免疫性疾病,长期的慢性炎症可导致关节功能障碍,病理表现为滑膜的增厚、关节积液等,可严重影响患者的生活质量。准确评估患者病情的严重程度对治疗具有重要的临床意义。目前常用的评估方法包括 X 射线、超声和 MRI 等。其中,X 射线对滑膜、软骨等评估价值较低;而 MRI 价格昂贵,Schmidt 等^[12]研究更是显示 MRI 在滑膜炎的诊断价值不如超声检查。既往超声检查的主要缺陷是缺乏定量或半定量分析,2012 年 Hartung 等^[14]提出了超声评分系统这一概念,综合评估患者关节滑膜厚度、滑膜血流、关节积液和骨侵蚀等情况,对类风湿关节炎患者超声检查进行定量评分。目前,国内对超声的定量分析尚处于起步阶段,本文综合分析了类风湿关节炎患者的超声诊断价值和超声评分系统在膝关节类风湿关节炎中的作用,具有一定的临床意义和创新性。

类风湿关节炎主要表现为关节积液和破坏,本研究显示使用超声可以根据患者髌上囊液体深度、关节腔液体深度、滑膜厚度、增生滑膜内血管检出率等一系列的超声表现区分类风湿关节炎患者和健康成人。另外,Pearson 线性相关性分析显示超声评分与患者类风湿关节炎疾病活动度评分、C 反应蛋白、红细胞沉降率、髌上囊液体深度、髌下囊液体深度和关节腔液体深度等均呈正相关($P < 0.05$)。由于类风湿关节炎病情活动度评分与患者病情严重程度紧密相关,从而被广泛应用于临床中^[15-16]。2016 年 Christensen 等^[17]研究显示,超声评分与类风湿关节炎病情活动度评分紧密相关 $[\beta = 0.06, 95\% CI(0.02, 0.09), P < 0.01]$;2016 年 Ciurtin 等^[18]研究同样表明,超声评分与类风湿关节炎病情活动度紧密相关,均支持本研究结果。C 反应蛋白和红细胞沉降率等是反映患者体内炎症反应的指标,局部长期的慢性炎症是导致膝关节积液和损伤的主要原因,因此 C 反应蛋白和红细胞沉降率可以在一定程度上反映膝关节功能情况^[19-20]。本研究显示超声评分与 C 反应蛋白、红细胞沉降率呈正相关,表明超声评分可以较好地反映患者体内炎症水平。髌上囊积液、髌下囊积液和关节腔积液深度是膝关节类风湿关节炎患者疾病严重程度的主要临床表现^[21],而超声评分可以较好地反映患者局部积液情况。以上均表示,超声评分可以较好地反映膝关节类风湿关节炎患者局部损伤情况和体内炎症水平,可以对患者进行定量评估,具有较强的应用价值。此外,国外几项研究也肯定了超声评分在类风湿关节炎中的作用^[22-25]。目前我国对膝关节类风湿关节炎患者滑膜厚度缺乏定量分析,本研究显示膝关节类风湿关节炎患者与健康成人滑膜厚度分别为 (0.50 ± 0.19) cm 和 (0.13 ± 0.05) cm,差异有统计学意义($P = 0.000$)。本研究样本量较大,因此数据可为临床超声医师提供参考。

综上所述,超声在类风湿关节炎中具有良好的诊断价值,超声评分系统可以较好地反映患者的疾病严重程度。

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