MOCART Score is Not a Feasible Tool for the Assessment of Osteochondral Lesions of the Talus
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Introduction/Purpose: To evaluate the applicability and reproducibility of the Magnetic Resonance Observation of Cartilage Repair Tissue (MOCART) score for morphological evaluation of osteochondral lesions of the talus (OLT) repaired using the autologous matrix-induced chondrogenesis (AMIC) technique.

Methods: Two radiologists (R1-R2) and two orthopaedic surgeons (O1-O2) independently reviewed 26 MRI scans of the ankle performed on 13 patients (6 females, 7 males; age: 38.9±15.9, range 14-63) with OLT repaired using the AMIC technique between November 2011 and July 2015 at our institution. Out of 13, 7 were treated with biomimetic osteochondral scaffold implantation, while 6 were treated with bone-marrow derived cell transplantation. The MRI scans were performed at 6 and 12 months after treatment. For inter- and intra-observer agreement evaluation for each variable of the MOCART score we used Cohen’s kappa coefficient. Progression of MOCART score between 6 and 12 months evaluation was assessed using the Wilcoxon test.

Results: The inter-observer agreement between R1-R2 ranged from poor (adhesions, k=0.124) to almost perfect (subchondral bone, k=0.866), while between O1-O2 ranged from absent (effusion, k=-0.190) to poor (surface, k=0.172). The intra-observer agreement of R1 ranged from poor (signal intensity, k=0.031) to substantial (subchondral lamina, k=0.677), while that of O1 ranged from absent (subchondral bone, k=-0.061) to substantial (surface, k=0.663). There was a statistically significant increase of MOCART score between 6-month and 12-month evaluation of R1 (Z=-2.672; P=0.008), R2 (Z=-2.721; P=0.007) and O1 (Z=-3.034; P=0.002). Conversely, the increase of MOCART score between the 6-months and 12-months evaluation of O2 was not statistically significant (Z=-1.665; P=0.096).

Conclusion: MRI certainly has a crucial role in the follow-up of surgical repaired OLT but the MOCART score does not seem to be sufficiently reliable and reproducible to be applied for this purpose.

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