Dobutamine Magnetic Resonance Stress Testing: Initial Experience in Israel

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Background: Over the past years, dobutamine stress magnetic resonance (DSMR) has proven its efficacy as an integrated part of the diagnostic armamentarium in cardiology; however, the use of DSMR has just been started in Israel. Therefore, we sought to present our initial experience.
Methods: Twenty three patients (54 ± 15.5, range) with suspected or known coronary artery disease (CAD) were referred for DSMR. Cine images were acquired in 3 short- and 3 long-axis views. Patients were examined at rest and during a standard dobutamine-atropine protocol (10 mg increments every 3 minutes up to 40 mg dobutamine/kg body weight/minute plus atropine if required to reach the target heart rate). The examination was terminated if new or worsening wall-motion abnormalities or chest pain occurred or when > 85% of age-predicted maximum heart rate was reached. Image quality and wall-motion at rest and maximum stress level were evaluated using a four-point scale for the visibility of the endocardial border (score: 1 = barely or not visible; 2 = moderately or partly visible; 3 = well visible; and 4 = excellently visible).
Results: Diagnostic DSMR studies were completed in all patients in an average of 53 ± 7 minutes. The clinical indications for the study were: Assessment of cardiac ischemia (18 patients), viability (1 patient), and perioperative evaluation of non-cardiac surgery (4 patients). No patients experienced myocardial infarction, ventricular fibrillation/tachycardia, or death. Target heart rate had been reached in 96% of the patients. The segmental intra-observer agreement for wall motion assessment was nearly perfect ($k = 0.80$; $p < 0.0001$) and the average image quality was excellent without difference of the rest versus maximal stress cine images (3.8 ± 0.38 vs. 3.7 ± 0.40, $p = 0.125$; respectively).
Conclusion: Our initial clinical experience demonstrated the clinical application and safety of DSMR in Israel.