

## **DYNAMIC MAGNETIC RESONANCE IMAGING FOR GRADING PELVIC ORGAN PROLAPSE BY USE OF A NEW REFERENCE LINE**

### **Hypothesis / aims of study**

The quantification of prolapse by magnetic resonance imaging (MRI) depends on MRI-specific landmarks: in most cases, the hiatus of levator ani [Comiter, 1999 #32] or the mid-pubic line [Singh, 2001 #17]. Because these landmarks are different from those used in the clinical examination, correlation between MRI grading and clinical grading are questionable. This study proposes a new and simpler method for applying the clinical classification proposed by the ICS (POP-Q) to dynamic MRI grading, by using a new landmark, the perineal line. This line is mobile when put under strain like the Hymeneal plane that is used in the POP-Q [Bump, 1996].

### **Study design, materials and methods**

In a cross sectional study, 20 women with genital prolapse of grade II or above were assessed by clinical examination using the POP-Q and underwent dynamic MRI. Clinical staging (according to the ICS) was compared with staging by magnetic resonance imaging. MR imaging was performed in supine position with a 1.0T static unit with use of a body-phased array coil and without lumineal contrast. Images were obtained in the sagittal and coronal planes: FSE T2-weighted sequences for anatomic exploration, single-slice ultrafast images for dynamic exploration (at different levels of pelvic strain, repeated if necessary). The new reference line, the perineal line was drawn as follows: A line is drawn as a tangent from the internal surface of the symphysis pubis down to the caudal end of the external anal sphincter. Point Ba, C and Bp were measured on MRI picture according to the definition proposed for clinical grading [Bump, 1996].

### **Results**

All women were able to strain satisfactorily.

The three Points we measured (Ba, C and Bp) showed significant correlation between MRI and clinical examination. Correlation were substantial for point Ba (Spearman Correlation = 0.74,  $p < 0.01$ ) and point C (Spearman Correlation = 0.74,  $p < 0.01$ ). Correlation was less for Point Bp (Spearman Correlation = 0.58  $p < 0.05$ ).

The agreement between overall staging by MRI and by clinical examination was fair (Kappa = 0,52).

MRI upgraded systematically point C of 1.5 cm (paired student t-test  $p < 0.01$ ) Differences were less than 1 cm for point Ba and Point Bp.

### **Interpretation of results**

MRI is a good tool for evaluating the middle/intermediate and anterior compartments. As for the posterior compartment, MRI evaluation shows good statistical correlation, but admits a high rate of misclassification. This is probably due to the fact that inversely to clinical examination the measures were not sensibilized by use of a vaginal retractor

### **Concluding message**

The results of this study are encouraging. It would now be valuable to determine the degree of intra-observer variability, particularly in the evaluation of the posterior compartment. It would also be useful to extend our investigation to other MRI-specific landmarks.