

MAGNETIC RESONANCE OF THE PELVIC FLOOR: CHARACTERIZATION OF STRUCTURES, ATROPHY AND PROLAPSE IN WOMEN WITH AND WITHOUT URINARY STRESS INCONTINENCE.

Aims of Study

To determine the frequency of identification and to assess interobserver agreement, regarding pelvic prolapse, characterization and atrophy of muscular and ligamentous pelvic floor structures by magnetic resonance imaging (MRI) in women with and without urinary stress incontinence.

Method

Twenty-two asymptomatic female volunteers and twenty-five women with stress urinary incontinence (20-80 years, mean: 50 years) underwent pelvic magnetic resonance (1.5T) examinations between February/2000 and February/2001. Turbo spin-echo sequences, T1 and T2 weighted, on axial and sagittal planes, were performed. Studies were evaluated by 2 independent observers aiming to identify the levator ani (pubococcygeal and iliococcygeal), puborectal, coccygeous, obturatorius internus and urethral sphincter muscles, and the pubouretral ligament; as well as evaluating the thickness and integrity of these muscular groups. The thickness mean was calculated among asymptomatic volunteers for each pelvic structure. Atrophy was characterized according to the average and standard deviation of these measures. Presence of pelvic prolapse was also evaluated. Anatomic structure identification frequency and interobserver agreement (interobserver agreement proportion index and confidence interval-95%) were observed.

Results

Structure identification frequency ranged from 55 to 100%, being slightly lower for the ligaments, when compared to the muscles. Interobserver agreement on the identification of the structures was: levator ani (100%), pubococcygeal (96%), iliococcygeal (94%), puborectalis (87%), coccygeus (87%), obturatorius internus (96%), urethral sphincter (72%) muscles and pubouretral ligament (55%). Interobserver agreement on the identification of atrophy of the structures varied for the different muscles: levator ani (63%), pubococcygeal (95%), iliococcygeal (55%), puborectalis (97%), coccygeus (97%), obturatorius internus (80%), urethral sphincter (89%) muscles and pubouretral ligament (95%). No difference was observed on the reduction of muscular or ligamentous structures between women with stress urinary incontinence and the control group. In 25 women with stress urinary incontinence association with cistocele was observed in 22 (88%) women, on the images obtained with stress. In the group with 22 asymptomatic women, cistocele was observed in 8 (36%).

Conclusion

Pelvic MRI allows precise identification of the main muscular and ligamentous pelvic floor structures in most individuals even in women with stress urinary incontinence. Good rates of interobserver agreement were observed. No statistically significant difference was observed in thickness of the muscles or ligamentous structures between the group of incontinent women and asymptomatic women. Cistocele was significantly more frequent in women with urinary incontinence in comparison with asymptomatic women.

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