

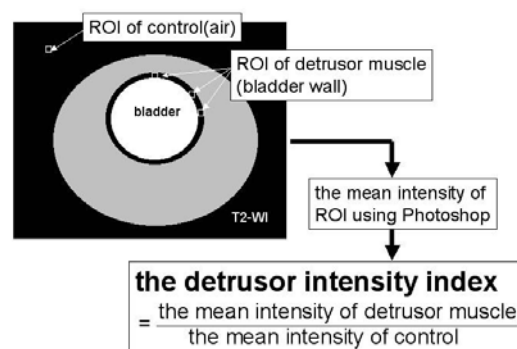
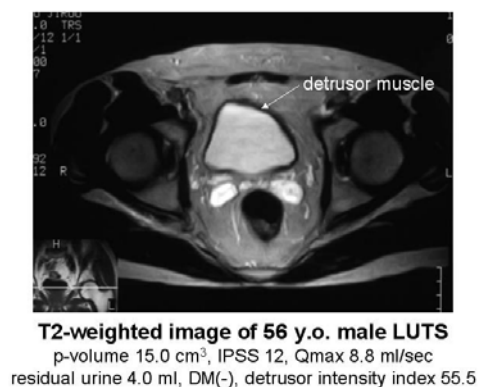
CHANGE OF DETRUSOR MUSCLE ON MRI IN MALE PATIENTS WITH LOWER URINARY TRACT SYMPTOM (LUTS)

Hypothesis / aims of study

To determine the value of magnetic resonance imaging (MRI) on quantitative estimation of the detrusor musculature in male patients with voiding disorder.

Study design, materials and methods

In this study, male patients with LUTS was defined as the patients with small prostate volume (<20.0 cm³), high IPSS (>8), low Qmax (<10.0 ml/sec) and small residual urine (<100ml) without any neurological diseases. Eighteen patients (age: 36-76 years) underwent MRI (0.3T) without endoluminal coil. A region of interest (ROI) was randomly drawn at three sites in the bladder wall as the detrusor muscle and at one extracorporeal site (air) as the control on the axial view of T2-weighted images. The value of mean intensity at each ROI was obtained using Adobe Photoshop (ver. 6.0). The detrusor intensity index was calculated as the mean intensity of the detrusor muscle divided by the mean intensity of the control. All data are expressed as the means $\pm$ SEM.



Results

In male patients with LUTS, prostate volume, IPSS, Qmax, residual urine and the detrusor intensity index were 13.9 ± 0.8 cm³, 16.9 ± 1.0 , 7.6 ± 0.4 mL/sec, 7.0 ± 2.9 mL and 36.8 ± 6.8 , respectively. Four patients had well controlled diabetes mellitus without triopathy.

Interpretation of results

The smooth muscle in detrusor could be visualized as dark layer as other muscle structure on the T2-weighted MR images. In our previous report, the detrusor intensity index was greater in weak detrusor group (39.1 ± 11.2) compared with that in normal subjects (15.6 ± 5.6). Therefore the change of the intensity of detrusor on MR images might reflect the change of bladder smooth muscle such as the fibrous or ischemic change. Our present study demonstrated that the detrusor intensity index of male patients with LUTS was similar to that of weak detrusor group. Alfa-blocking agents could reduce IPSS in a half of male patients with LUTS, but anti-cholinergic agents might be more effective in these patients.

Concluding message

We reported the change of the detrusor muscle on MR imagings in male patients with LUTS. The deterioration of detrusor muscle might already present in these patients.

FUNDING: NONE

DISCLOSURES: NONE

HUMAN SUBJECTS: This study did not need ethical approval because we used non-harmful examinations to well informed patients. but followed the Declaration of Helsinki Informed consent was obtained from the patients.