The Transitional Period from OAB to UAB; Decreased contractility and increased residual urine in a rat model of chronic ischemic bladder

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Introduction & Objectives
Epidemiological studies have shown that lower urinary tract symptoms, including OAB syndrome, occur commonly in the elderly of both sexes. Vascular endothelial dysfunction also occurs during human aging process and reported to be an independent risk factor for the atherosclerosis. Atherosclerotic changes in the pelvic vasculature may be an important contributing factor to the urinary tract symptoms. Clinically, detrusor underactivity is diagnosed based on urodynamic exam, defined as a contraction of decreased strength, sometimes with failure to achieve complete bladder emptying. It has already been suggested that chronic ischemia due to atherosclerosis is related in the pathophysiology of LUTS and progressive bladder dysfunction. In this report, we introduce the chronic effect of arterial endothelial injury of the common iliac arteries with high cholesterol diet on the rat bladder function, which may clinically reflect the transitional period from OAB to underactive bladder (UAB).

Material & Methods

The procedure for producing AI has been described by Nomiya et al. previously. Briefly, the animals were anesthetized with 50mg/kg of intraperitoneal injected pentobarbital, and a 2Fr Fogarty arterial embolectomy catheter (E-060-2F from Edwards Lifesciences LLC, Irvine, CA) was passed through the femoral artery into the common iliac artery. The balloon was inflated with air and subsequently withdrawn from the common iliac artery to the femoral artery, and this maneuver was repeated 10 times on each side.

Conclusions
Pelvic arterial occlusive disease may cause the decreased strength of contraction of the bladder and increased residual urine. When translated clinically, this model might show the natural history of the underactive bladder.

References