

Listening to the urinary stream

Benign prostate enlargement affects most of the elder men and often compresses the urethra resulting in voiding symptoms. Dutch researcher Tim Idzenga has found a way to measure the resistance of the urethra using sound: via a microphone placed behind the scrotum. The sound spectrum of the recorded sound depends on how much the urethra has been compressed.

Elder men with voiding symptoms, such as a weak urinary stream and frequent voiding, often suffer from an enlarged prostate, clinically known as 'Benign Prostatic Enlargement' (BPE). However, a weak urinary stream and frequent voiding can also be caused by a weak bladder, for which a prostate operation does not help.

If BPE is suspected in a patient, the bladder pressure during voiding is measured using a catheter inserted into the bladder via the urethra. The urinary flow is simultaneously recorded. This investigation is time-consuming, painful and carries a risk of infection. On top of this, it is not carried out in all patients with BPE symptoms. Consequently, there is a need for a simple, painless measurement method for determining the resistance of the urethra and its location.

Tim Idzenga came up with the idea of using the sound produced by the urinary flow in the urethra as a measure of the urethral resistance. He performed the measurement by placing a microphone against the perineum, between the scrotum and anus. The frequency spectrum of the sound was found to correlate with the narrowing of the urethra. The degree of narrowing can therefore be determined from the recorded urinary sound.

A patent for this invention is being applied. The method will be tested at the urology outpatient clinic of the Erasmus MC in Rotterdam. Besides the standard method, patients with voiding symptoms will also be asked to urinate with a microphone against the perineum.

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