Validating new ultrasound parameters for quantifying pelvic floor muscle contr

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摘要
Abstract

Objective

To determine the reliability and validity of new ultrasound parameters, measured in the polar coordinate system, for quantifying pelvic floor muscle action.

Methods

This was a prospective study, from January 2005 to December 2007, in 209 women with urodynamic stress incontinence, to validate new ultrasound parameters for quantifying pelvic floor muscle contraction. The examination of each patient included intravaginal digital palpation of voluntary pelvic floor muscle contractility and an ultrasound assessment of the positions of the bladder neck and anorectal junction at rest and during pelvic floor muscle contraction. The position of the bladder neck was expressed by bladder neck angle and bladder neck distance from the lower border of the pubic symphysis, and the position of the anorectal junction was expressed by the levator hiatal angle and sagittal hiatal diameter. The vector lengths of the motion of the bladder neck and anorectal junction during pelvic floor muscle contraction were calculated from the positions at rest and during pelvic floor muscle contraction by mathematical formulae.

Results

There was good inter- and intraobserver reliability of measurement of ultrasound parameters on stored volumes. During pelvic floor muscle contraction, elevated bladder neck distance and shortened sagittal hiatal diameter were valid parameters representing stronger pelvic floor muscle contractility, with shortened sagittal hiatal diameter having the best correlation (r = - 0.348, P < 0.001).

Conclusion

The methods used in this study appear to be reliable for quantifying pelvic floor muscle action. The bladder neck distance with respect to the lower border of the pubic symphysis and the sagittal hiatal diameter were both valid parameters reflecting PFM contractility. Copyright © 2009 ISUOG. Published by John Wiley & Sons, Ltd.

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