LMS-based reference charts for testicular volume in Dutch children and adolescents

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Introduction

Measurement of testicular volume
• Basis for assessing delay or advance in onset of male puberty
• Macro-/microorchidism associated with genetic defects, pituitary disease, testicular pathology

Techniques
• Prader orchidometer: practical but overestimates true volume
• Ultrasonography: gold standard

Problem
• Testicular volume changes with age until adulthood
• No reference data that allow calculation of SD scores (LMS-curves) are available

Discussion

Advantages of these curves
• Calculation of SD scores using LMS-tables (not displayed)
• Follow-up of testicular volume
• Evaluation of Sertoli cell function vs. Leydig cell function

Concluding remarks
• Ultrasonography is more reliable than orchidometer
• Normal onset of puberty: 4 mL (Prader) or 1.4 mL (US) between 9.0-14.0yr
• Curves can also be used for (young to middle-aged) adults
• Prader orchidometer cannot be used to diagnose macroorchidism in adults

Comparing testis volume SDS with Tanner pubic hair SDS allows evaluation of Sertoli vs. Leydig cell function.
• Normally reasonable agreement (upper)
• Dissociation in various diseases (lower)

* Data from this cohort were previously presented in Horm Res Paediatr. 2011;76:56-64