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Institutionen för kvinnors och barns hälsa

A prospective randomized study of congenital cryptorchidism

AKADEMISK AVHANDLING

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av

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ABSTRACT

Background: Cryptorchidism is the most common anomaly in newborn boys. Despite its frequency there are controversies regarding many aspects, including the optimal timing of surgery, natural course of the spontaneously descended testes, frequency of acquired cryptorchidism, risk of infertility and testicular cancer. Based on indirect proof the general consensus is that treatment should be offered before the age of 2 years. However, this has not been proven in prospective randomized trials.

Aims: The objectives are to present the first prospective randomized study on the optimal age for treatment, to identify markers of importance for future spermatogenesis and to investigate the growth and natural course of the spontaneously descended testes.

Patients and methods: A total of 426 boys were included. Morphometric, volumetric and endocrine data were investigated in boys randomized to surgery at 9 months or 3 years of age and compared to boys with spontaneous descent up to 5 years of age. A total of 213 biopsies were analyzed, testicular volume was assessed from ultrasound measurements at birth and 6 months and then yearly up to 5 years of age. At surgery, measurements were made with a ruler. Inhibin B, LH, FSH and testosterone were analyzed at birth, at 2 and 6 months and at 1, 2 and 4 years of age.

Results: Comparisons between early and late treated boys showed significant differences in testicular growth, number of germ and Sertoli cells ($p < 0.001$) at the time of surgery. The testes that descended spontaneously showed impaired growth and were found to be at high risk for later ascent. No conclusive differences in hormone levels were demonstrated.

Conclusions: We have proven that surgical treatment at 9 months of age is more beneficial for spermatogenesis and testicular growth compared to treatment at 3 years of age, testicular volume was also shown to reflect spermatogenesis in early childhood. Hormones taken at infancy could not predict later testicular growth or spermatogenesis. We proved that also spontaneously descended testes have impaired later growth and, furthermore, that many of these testes ascended later on.