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Urological outcome in a large group of children with meningomyelocele over thirty-six years

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Background

Since 1971 the urological treatment of children with a meningomyelocele (MMC) has been intensified in our hospital. Urodynamic investigation, intravenous pyelographs, ultrasound investigation of the kidney was performed. Urological surgery started in 1986, followed by clean intermittent catheterisation and low dose chemoprophylaxis. Nevertheless there is an increasing number of publications reporting kidney transplantation in MMC. The aim of the present study is to retrospectively review the urological outcome of children with MMC born between 1967 and 2003.

Materials and methods

Kidney function and urodynamic properties were reviewed and also kidney damage, number of kidney transplantations, as well as number of deaths. Kidney length as a measure of kidney development and function is taken in the children treated before 1986 from tracings made of all intravenous urographs, and from the children treated since 1986 from all available renal ultrasound studies. All kidney lengths recorded from 1967 to 2003 were analyzed. Dmsa scans were also evaluated. All measurements of kidney length of our children with MMC together (right and left kidney) were plotted with 5% and 95% percentiles to age. One researcher reviewed all urodynamic studies from 1967 to 2003 (J.B.D.M van Gool). Hyperactive sphincter with or without bladder hyperactivity is leading to decreased emptying of the bladder and is defined as detrusor sphincter dyssynergia (DSD). To document the relationship between kidney length and DSD, records were selected of those patients who underwent an IVP/ultrasound AND an urodynamic investigation within a period of 6 months.

Results

465 children were born with MMC. 7 children died at a later age. In none of them the cause of death was related to renal function. 388 datasets were available for analysis (181 males, 207 females). Only one child received transplantation. The prevalence of DSD and the influence of DSD could be analyzed in 175 children. The age in the group children with DSD (avg 13.4, sd 8.3) was significantly older compared to the group without DSD (avg 8.8, sd 7.6). Dmsa scans were only performed with known abnormalities on IVP or ultrasound. Two third of the children with DSD had renal damage on a dmsa scan where in the group without DSD fifty percent had renal damage.

Conclusion

DSD remains a serious problem in adolescence leading to kidney damage. However also in children without DSD renal damage occurs. Overall the strategy followed since 1971 has led just once to kidney transplantation and no child died due to renal failure.