Neurogenic Bladder—Primary Aetiopathogenetic Factor in the Development of Chronic Renal Failure in Adolescents

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Haemodialysis and kidney transplantation are great advances in the therapy of renal failure. More important is, however, its prevention, whenever it is possible. In this paper we should like to call attention to the so-called neurogenic bladder.

The term neurogenic bladder includes all disturbances of function and diseases of the bladder due to disorders arising in the central nervous system, peripheral nerves or intrinsic nerves and ganglia of the bladder (Boyarsky, 1969). Causal association of disorders in the central nervous system with changes in the urinary tract has been proved in paraplegics with transverse lesions of the spine (Bors, 1957). The association of spina bifida with neurogenic bladder has not yet been proved. A prospective study of the neonates with meningomyelocele has, however, shown that visible cystographic signs of neurogenic bladder increased with age, so that at the age of four years they were found in 100% of cases (Chapman, 1969). Sometimes disturbances of voluntary control of micturation or bedwetting can be for a long period and be the only manifestation of neurogenic bladder.

Out of 400 enuretics studied we found that more than 60% showed neurogenic dysfunctions of the urinary system. Three of them were uraemia. A typical case is presented:

A 10 year old girl started bedwetting in the 6th year of life. The urine was found to be sterile and no special treatment was recommended. In the 9th year of age the parents observed that the girl was not developing, lost her appetite, was thirsty and occasionally had pain in the abdomen. She did not urinate during the day, but bedwetted during the night. Three weeks before admission to hospital, she was dyspnoeic at night.

In the hospital, pyuria, hyperazotaemia (blood urea 570 mg/100 ml), hypertension (blood pressure 150/100 mm Hg), anaemia (2 x 10^6 RBC/mm^3) and pericarditis were found. Clearance of creatinine was 1.92 ml/min. A cystometrogram showed overdistention, retention of 700 ml and overflow-
incontinence. Voiding cystography showed a large bladder with trabeculation, funnel urethra and spastic external sphincter. Cystoscopy under anaesthesia showed that the sphincter was relaxed; there was no reflux, or obstruction.

After one year of therapy (dialysis, antibiotics and re-education), the girl is able to attend school with one dialysis in a three weeks period and the creatinine clearance is now 15 ml/min.

It is certain that a correct diagnosis in the sixth year of life could have led to a correction of the dysfunction and so have prevented renal failure. Nevertheless, even in the advanced state, intensive modern therapy may be beneficial.

It is therefore recommended that in all 'enuretics' the clinical picture
should be precisely described according to the following scheme:

1. Time, when involuntary micturition takes place, e.g. Enuresis Nocturna (EN), Diurna (D);

2. Onset of enuresis: Ep (primary), Ea (acquired);

3. Intensity of dysfunction characterised as follows: Frequency of micturition - F; frequency of bedwetting during night - 1/N; week - 1/W; month - 1/M. Involuntary evacuation of the whole bladder - N.D.; emptying only a small quantity of urine, dribbling - n.d.; Urgency - u; incontinence - i; stress incontinence - s.i.; overflow incontinence - o.i.

In the case with EN D f u d, especially with dribbling during the day and with urgency incontinence, cystometrograms and cystographic evaluation of urinary system should be carried out.

REFERENCES

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