URO-CHECK IN PARAPLEGICS

(A survey of pathological changes of urinary tract in paraplegics)

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Abstract. On the basis of a Uro-check list, drawn up by the rehabilitation centre Tobelbad near Graz, 120 spinal cord injured persons were followed up, identifying changes in the urological tract. The classification and evaluation of the urological complications revealed a high percentage of severe changes which had occurred during the first decade after the accident. As a consequence it must be ensured that spinal cord injured persons receive yearly check-ups in a urological oriented rehabilitation centre where all modern examination methods, including electronic techniques for the measurement of intravesical pressure and urethral resistance, are available.

Introduction

A CONTINUOUS satisfactory urological management of spinal cord injury cases demands an active co-operation between the patients and the doctor of the spinal unit. This is why routine check-ups at regular intervals are carried out in the Rehabilitationcentre of Tobelbad.

The injured are followed up at least once a year; some patients may need to be seen more frequently, depending on the clinical findings of the check-up. At each examination the initial bladder volume, residual urine, urinalysis and observation of the urinary stream are carried out and the registered data are checked up carefully in an urological follow-up sheet. It takes about a week to run through the routine investigation procedures. During this time the patient will be kept as an in-patient.

Materials and Methods

A total of 120 complete and incomplete tetra- and paraplegics with neurogenic bladder dysfunction has been investigated independent of age, sex and time of accident. Regarding the age and sex, two-thirds of the male patients were in the 30- to 50-year group. Ninety-one per cent of those followed up were males and the remainder, only 9 per cent, were females. The paraplegic lesions of the patients were at least two years old, with a maximum of 30 years. Most of the investigated patients had previously been treated at the spinal unit of Tobelbad; others had received their preliminary treatment elsewhere before being seen by us.

In order to obtain significant results, quite a number of urograms, neurological tests and urological examinations have been carried out. One hundred and twenty urographies to observe the urinary stream had been carried out. Fifty per cent of these were free from pathological changes. Concerning the level of the traumatic spinal cord lesions, there were 60 patients with a complete lesion ranging from C4 to L4. Sixty other patients had an incomplete lesion ranging from D3 to S2. According to these different levels of destroyed cord, 39 per cent shared evidence of upper motor neuron bladders and in 60 per cent a lower motor neuron

TABLE I

Pathological changes	Percentage of all urological complications	
Bladder stones	4	2.7
Reflux up both ureters	12	8.7
Bladder diverticulum	12	8.7
Trabecular bladder	44	33.4
Urethra diverticulum	5	3.3
Hydroureter and hydronephrosis	15	13.8
PN	27	18.9
Contracted bladder	6	4.2
Hypertrophic ring at the neck of the bladder	3	2.1
Atrophic kidneys	4	2.7
Fistula urethra	2	1.4

bladder was found, while only 1 per cent had a bladder type of mixed motor neuron bladder. The micturition habit of the investigated patients were as follows:

Fifty-two per cent emptied their bladders by manual expression and only 17 per cent were emptying their bladders by suprapubic tapping.

Three per cent of the examined patients needed an indwelling urethral catheter and all 3 per cent had an infection of the urinary tract.

Intermittent self-catheterisation was performed by 13 patients (11 per cent). Three of them had no sterile urine culture. The rate of infection of the urinary tract was rather low. On admission there were only 40 per cent with infected urine, some, however, with a high bacteriological cell count.

Catheter and midstream specimens showed here micro-organisms as a significant colony counts nearly more than one million/ml.

In some cases residual urine was high. Twenty-five patients or 21 per cent had an increase of more than 300 ml of residual urine. In patients who were continent and had sterile urine no catheterisation was performed in order to avoid an infection of the bladder. Forty-six per cent of all investigated patients had a permanent incontinence and among them there are many who use either urinals or, especially the females, sanitary towels.

Results

An urological analysis of 120 reviewed is revealing. Upper motor neuron bladders showed 27 per cent and lower motor neuron ones showed 43 per cent of pathological changes in a total of 137 urological complications (see Table I).

Due to these urinary complications a number of patients had to stay in for a longer period of time for treatment. Transurethral bladder neck resection and external urethral sphincterotomy had to be carried out. Bladder stones were removed by 'Urat I' and conservative treatment had been done for decreasing the residual urine. Ileal conduit diversion is not carried out and we have no experience with that kind of urological operation.

Discussion

Concerning the pathological changes on the urinary tract, we have found that in only 51 of the investigated patients (40 per cent) all possible urological complications occurred during the first 10 years after the accident. Only 10 per cent have shown no urological complications in patients whose injury was more than 20 years ago. Furthermore, we could find a high incidence of infected bladder functions.

Conclusion

When interpreting these findings, one comes to the most important conclusion that patients who sustained a cord injury should have a regular follow-up for the rest of their lives and not only during the stage of rehabilitation but also later on after being discharged from centre or hospital. It must be emphasised that a rehabilitation centre should be well equipped with urological instruments and apparatus meeting all requirements of a modern set-up.

Life expectancy of paraplegics depends not only on recognising disturbed bladder function at an early stage but also on careful medical treatment. This maintains satisfactory bladder function to particularly prevent the late sequels which are the main causes of totalities among paraplegics. In respect of the high percentage of urological complications, the co-operation with an urologist in a well co-ordinated team is also suggested by Sir Ludwig Guttmann.

RÉSUMÉ

Après élaboration d'une liste d'Uro-check au centre de réhabilitation Tobelbad chez Graz, 120 malades paraplegiques étaient examinés aux transformations du tract urinaire. Faisant les éclaircissements et l'exploitation des complications urologiques, nous avons vu un pourcentage d'une altitude extraordinaire des altérations graves en premiers dix ans après l'accident. Cela nous donne la demande d'appels et contrôles annuels de nos malades paraplegiques au centre de réhabilitation lequel est réussi à faire les méthodes d'exploration urologiques inclusivement les méthodes électroniques de mesurage de pression de la vessie et d'urètre.

ZUSAMMENFASSUNG

Nach Ausarbeitung einer Uro-check Liste im Rehabilitations-zentrum Tobelbad bei Graz wurden 120 Tetra- und Paraplegiker auf krankhafte Veränderungen im Bereich des Harntraktes nachuntersucht. Bei der Aufschlüsselung und Auswertung aller urologischen Komplikationen zeigt sich ein überraschend hoher Prozentsatz an schweren Veränderungen innerhalb des ersten Jahrzehntes nach dem Unfallzeitpunkt. Daraus ergibt sich die Forderung nach jährlichen Einberufungen und Nachkontrollen Rückenmarkverletzter in ein RZ, welches auch urologisch ausgerichtet ist und wo alle modernen Untersuchungsmethoden einschliesslich elektronischer Blasen- und Harnröhrendruckmessungen zur Verfügung stehen.

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