Introduction

The principles of urodynamics having been discussed and the reader provided with a proper understanding of urodynamic techniques, it is important to place urodynamic studies in a proper clinical context. The purpose of this chapter is to show how urodynamic tests can help the clinician to improve diagnosis and treatment. There are four main ways in which this is possible:

- The investigations may assist in the evaluation of an individual case, providing objective evidence on which to base decisions.
- The analysis of groups of patients may, over a time, improve both the understanding of pathophysiology and the selection of patients for treatment.
- Urodynamics may provide objective information before and after therapeutic intervention, allowing the clinician to monitor the results of treatment more accurately.
- The tests assist the continuing education of clinicians themselves.

As the clinician becomes more experienced in the urodynamic investigation of patients their confidence in their diagnostic ability as to the significance of symptomatic complaints increases. This increase in confidence is only partially justified. We shall refer to the study in which the diagnostic ability of the urodynamic investigations was tested. The computer proforma (Appendix 3 Part 1) contains a question that is asked of the investigator at the end of the symptomatic enquiry, i.e. they are asked to predict the urodynamic findings from the symptomatic complaints. Even for the experienced investigator the results are salutary!

The urodynamic diagnosis is used by us as the “arbiter of truth”. This statement assumes that the explanation for the patient’s symptomatic complaints will unfold as the urodynamic investigations proceed. If the symptomatic history and
The urodynamic investigations are at variance then the studies should be repeated or extended.

In 1995 we investigated 3578 patients in our unit. By far the most common investigation was urine flow studies with the ultrasound estimation of residual urine. Table 5.1 shows the proportions of children, men and women investigated and the investigations these patients had. The median age of women investigated was 52 years and that of men 66 years.

### Urodynamics in Children

Three main groups of children are considered for urodynamic studies (UDS):

- Children with neurological disease and possible vesicourethral dysfunction.
- Children with lower urinary tract symptoms and/or dysfunction.
- Children with non-neurological congenital abnormalities and possible vesicourethral dysfunction.

### Children with Neurological Disorders

These are most commonly related to dysgenesis of the spine and the associated nervous system. The neurological deficit is frequently more complicated than that in acquired neurological problems, and this makes the interpretation of bladder dysfunction more difficult.

The largest group of children with neuropathic bladders are those with myelodysplasia. It is important to recognise that the level of the neurological lesion does not correlate with the functional classification of the bladder. This is true in many types of neurological disease, but is particularly evident in these children, most of whom have spina bifida in addition to their neurological lesion. The role of urodynamics is to make the crucial functional distinctions between a high-pressure bladder (unsafe) and a low-pressure one (safe), the former being associated with the worse prognosis. Blaivas et al. (1977) emphasised that there was no statistical correlation between the pressure generated in the bladder and the level of the neurological lesion. They noted that detrusor–urethral dys-synergia can occur in both “high-” and “low-pressure” bladders. The timing of UDS in these children is much debated. McGuire has been the protagonist for early UDS, within the first few months of life. Using leak point pressure measurements he advocates the early use of clean intermittent catheterisation to