Paraplegia

The Team Approach to Urinary Bladder Management in Spinal Cord Injury Patients: a 26-year Retrospective Look at the Highland View Hospital Urinary Catheter Care Team

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Summary

The Highland View Hospital Urinary Catheter Care Team was organised in 1962, primarily in response to the problems of increasingly drug resistant urinary infections and their complications in a chronic disease population which included patients with strokes, renal and liver failure and heart disease as well as those with spinal cord injury (SCI).

When the spinal cord injury centre was formed in 1970 the team became an integral part of the service.

The early problems in organising the team, its evolution into a valuable, economically viable, patient care service and its role in urological clinical research, are discussed.

Key words: *Spinal cord injury; Urinary catheter care team; Urinary tract infection prevention.*

Historical background

In 1958, urinary tract infections at the Highland View Hospital represented a major health problem. The patient population consisted mostly of elderly, chronically ill individuals with various neurological diseases as well as some young SCI patients. The incidence of urinary incontinence was therefore high and was managed mainly by the use of indwelling Foley catheters. The insertion and changing of catheters was the responsibility of nurses and doctors, at all stages of their training and using techniques which seemed to them to be most appropriate. At that time 'open' drainage receptacles were in use, and the emptying and care of them was the responsibility of ward aides and orderlies and sometimes of ward maids. Despite the wide use of antibiotics, patients were repeatedly infected, resulting in considerable morbidity and even mortality from urosepsis and calculus disease. An attempt to gain control of the situation by training a small team of nurses and technicians to take over all aspects of catheter care, using standardised aseptic techniques, seemed logical to some of us. However this concept met with

considerable opposition, mainly from the departments of urology and nursing, who felt that such an approach was unnecessary and would be an unwarranted encroachment on their territory. The formation of a separate unit however, which would be responsible only to the infection control physician, was deemed essential in order to avoid a reduction of team personnel in times of nursing shortage, and to have strict supervision of the aseptic techniques being used. For the latter purpose it was proposed to set up a small microbiology and urinalysis laboratory since the pathology service could not absorb the extra work required for monitoring such a project. It took considerable effort and innumerable meetings of committees and subcommittees before permission was granted in 1962 to form a small pilot team.

Because of the small size of our pilot team, consisting at first of only one registered nurse and one aide, a start was made by selecting a small group of 14 patients who were uninfected at that time. This enabled us to test the effectiveness of the 'standard' techniques which had been devised for use by the team. These were based on the pioneering work of Pyrah¹ and of Gillespie *et al.*² The latter had convincingly shown the important role not only of closed drainage systems, as proposed by Pyrah, but also of disinfection of the urethral tract in preventing ascending infections. In order to achieve this we changed catheters frequently to enable us to 'disinfect' the urethra with an antiseptic lubricant. No antibacterial drugs were used in these patients during this study, so that catheter changes were done as frequently as every day on one doubly incontinent, mentally confused woman, and not less frequently than every week on others.

The results showed convincingly the role of good catheter care in preventing infections.³ While the study was being carried out, much of the criticism and resistance to the team's activities abated, and physicians in the departments of medicine, orthopaedics and rehabilitation became our enthusiastic supporters. As a result of this, the team was rapidly expanded so that it could cover the whole hospital for 2 shifts, 7 days a week.

In 1968, following a visit to the Stoke Mandeville National Spinal Cord Injury Centre and in consultation with the Department of Orthopaedics, intermittent catheterisation (IC) was instituted for SCI patients, at that time still scattered in various hospital wards.

In 1970, at the insistence of Dr A. A. Freehafer, a spinal cord injury centre was opened and the Catheter Care Team became an integral part of the programme. Senior team personnel were trained in liquid and gas cystometry techniques, which greatly improved the hospital-wide bladder retraining programme. The skills and expertise acquired in this field ultimately resulted in a hospital-wide continence programme and the opening of a continence clinic in conjunction with the newly formed Geriatric Service, in 1984.

Subsequently, the American Spinal Cord Injury Association, at its annual meeting in 1974, passed a resolution that every regional spinal cord injury centre be required to have a catheter care team.

Benefits of the 'team' approach

Research

The team provides a controlled situation in which it is possible to study such problems as the role of antimicrobial prophylaxis in preventing infections in catheterised patients⁴ and as well as the effectiveness of new antibacterial drugs for the treatment of urinary tract infection,⁵ and testing new catheters and drainage equipment. Several papers, purporting to demonstrate that antimicrobial prophylaxis is ineffective, have all been based on retrospective or write-in surveys, with no control over the techniques of catheter care being used, thus allowing for so many variables that no valid conclusions are possible.^{6,7} Since our team has been in continuous operation for many years with virtually no change in the techniques, this has enabled us to do not only valid, retrospective surveys on our hospital patients from the 1960s onwards,⁸ but also a prospective study which demonstrated conclusively that antibacterial prophylaxis was of benefit in patients with neuropathic bladders.⁴

All urine specimens are collected by team members, daily from hospitalised patients on intermittent catheterisation, weekly from those with Foley catheters, and taken at once to the Catheter Service Laboratory. Such continuous vigilance is necessary, even with a small specially trained team, to ensure that breaks in technique do not occur, to institute prompt treatment if needed and to pinpoint and trace any unexplained infections which may appear.⁹

File cards are maintained in the special laboratory on all SCI patients, recording every urine culture ever received on each patient, from the time of the first admission and continuing for as long as they attend the follow-up Clinic. This now constitutes a valuable resource material for epidemiological studies on urinary infections in patients with neuropathic bladders.

Service

Team members also perform valuable services such as teaching and training patients, and their relatives in good catheter care techniques. Spinal cord injury affects the entire family so it is important that the relatives should be included in the education programme. They must often learn to insert and change catheters and are also expected to reinforce the teaching given to the patient on measures for preventing complications.

The Team is also involved in community teaching, being available for in-service programmes in other clinical departments and at outside facilities. Visitors from other centres come to visit and observe the team in operation, and as a result the Highland View Team has served as a role model for a number of others both in the USA and abroad.

Present status of the Catheter Care Team

Recent changes in the economics of hospital care in the USA have enhanced the attractiveness of the team approach to urological catheter care. Pressure from insurance carriers results in financial rewards for discharging patients sooner, and financial penalties for nosocomial infections which result in prolonged hospitalisation. Thus, the benefits of early bladder retraining, and reduction in nosocomial urinary infections, are of direct financial benefit to the hospital.

The 12 months infection rate for 1987, on our spinal cord injury unit of 29 beds, was 0.17% for patients with indwelling catheters (calculated as number of infections/days at risk) and 0.19% for patients on IC (calculated as number of infections/number of procedures).

Bacteria responsible for nosocomial UTIs are becoming, in many hospitals, increasingly drug resistant and require treatment with expensive new antibacterial drugs. A reduction in nosocomial infections will thus automatically result in further appreciable reductions in hospital costs in this area.

There is now an acute nursing shortage in the USA because of the many other career options becoming available to women. In Britain nurses are striking for pay raises. The relegation, therefore of urinary catheter care to teams of 'technicians', who do not require college education and are therefore paid less, results in increased efficiency for decreased expenditure. Under a recently introduced hospital accounting system which necessitates charging per procedure rather than per diem, we have now been able to show that the operation of a Catheter Team is itself cost-effective.

Conclusions

Looking back over the years, at the limited goals with which the Catheter Team was first launched, one is impressed with the way in which the role of the Team has expanded into areas which were never dreamed of in 1962. Since Highland View merged with Cleveland Metropolitan General in 1978, it has become apparent that the role of the team is not confined to the care of chronically ill and disabled inpatients for whom it was first founded. There are ever increasing demands for the Team's skills and expertise in the acute medical and surgical services and in the outpatient clinics. In fact it is difficult now to imagine life in our busy hospital without a Catheter Care Team.

We feel that our experience has proved that expert catheter care technicians can be recruited and trained from nursing aides and orderlies, provided they are continuously supervised by a nucleus of RNs and a responsible physician who has a direct interest in the programme. The net result is improved care for less money—surely every hospital administrator's dream!

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