

## THE OUTCOME OF ELDERLY PATIENTS FOLLOWING REMOVAL OF INDWELLING URINARY CATHETER

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### ABSTRACT

The objectives of this study were to examine the documented indications for the insertion of the indwelling urinary catheter in elderly patients before admission to Zammit Clapp Hospital, St. Julians and St Vincent de Paule Residence, Luqa and to study the outcome after attempting removal of the indwelling urinary catheter. 64 patients from Zammit Clapp Hospital and 61 patients from St. Vincent de Paule Residence were studied. In 34 patients (24%), no clear reason for catheterisation prior to admission could be identified. In 46 patients (32%) catheterisation was performed for severe uncontrollable incontinence. In all, 66 patients had their indwelling urinary catheter removed at some stage. Of these a total of 49 patients were continent 15 days after the removal of the catheter, 33 patients were still continent after 3 months and 29 patients remained continent after one year. With regards to continence rate, a poorer outcome was noted in patients with a mental score of less than 5/10, when compared to patients with a mental score of more than 5/10. Continence rates were better in patients from Zammit Clapp Hospital than in patients from St. Vincent de Paule residence. In conclusion, attempts should be made to use long term indwelling urinary catheterisation only if other measures fail. This can be achieved by proper multi-disciplinary team assessment and education of the patient or his carers. Full support from social services and provision and advice about the use of continence aids is necessary.

*Keywords: indwelling urinary catheter, incontinence, morbidity and mortality, geriatric, urinary retention.*

### Introduction

Indwelling urinary catheterisation is an important and useful procedure when performed for the correct indications but long-term use is associated with an increase in morbidity and mortality.<sup>1</sup> Improper care will result in higher complication rates namely ascending infection, leakage and blockage.<sup>2</sup> Urinary incontinence is a costly health problem in the geriatric population and since there could be multiple reversible causes, it is always beneficial to perform a detailed assessment and to implement other measures available to promote continence. Chronic indwelling catheterisation should only be used to manage incontinence when it is associated with clinically significant urinary retention, skin conditions that cannot heal because of incontinence, or severe illness that makes it the most comfortable way to manage incontinence.<sup>3</sup>

In this study, an attempt has been made to identify the reasons for deciding to opt for indwelling catheter use and to measure the outcome after the removal of such catheters. Unfortunately there seem to be cases where the decision for long term catheterisation is not taken

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on specific medical indications but based on available staffing levels in the wards. Catheterisation is convenient as it reduces the work load on nursing staff, avoids soiling of sheets and beds and so reduces demands on laundry.

The decision for temporary catheterisation must also be questioned. An acute medical illness like stroke or urinary tract infection or a surgical operation will produce reversible incontinence in most elderly patients but the procedure can be avoided if behavioural techniques and proper incontinence measures are available. It is the responsibility of the medical officer to pay particular attention to the needs of elderly patients in order to prevent complications associated with the use of urinary catheters and to avoid their use whenever possible.<sup>4</sup>

**Subjects and Methods**

A prospective study to be conducted over the period January 1993 to June 1993 was set up. All patients who were referred to Zammit Clapp Hospital or to St Vincent de Paule Residence and who had an indwelling urinary catheter on admission or during the previous 36 hours, were entered into the study. The latter group were included because proper toilet training would not have been accomplished during such a brief interval.

Data was collected for each patient on admission and during the period of stay in hospital. Follow up at three months and at one year was done to review the outcome.

The following information was obtained for each patient:

- patient identification and details
- patient origin (home, hospital, nursing home)

Patient is asked to answer 10 questions. Each question scores 1 point, half scores allowed for incomplete answers to questions 2, 6 and 10.

1. How old are you?
2. When were you born?
3. What month is it?
4. What year is it?
5. Where are you here?
6. What is the time now?
7. Address to be recalled at the end of the test?
8. What is the name of the archbishop?
9. When did Worl War II start?
10. Count backwards from 20.

**Figure I-** Abbreviated Mental Test Score by Hodkinson. (Adapted for Malta)

Feeding	2 Independent 1 Needs help 0 Dependent
Bathing	1 Independent 0 Dependent
Dressing	2 Independent 1 Needs help 0 Dependent
Grooming	1 Independent 0 Dependent
Bowels	2 Continent 1 Occasional accident 0 Incontinent
Bladder	2 Continent 1 Occasional accident 0 Incontinent
Toilet	2 Independent 1 Needs help 0 Dependent
Tranfers	3 Independent 2 Minimal help 1 Major help 0 Dependent
Ambulation	3 Independent 2 Needs help 1 Wheelchair independet 0 Immobile
Stairs	2 Independent 1 Needs help 0 Unable

**Figure II -** Barthel ADL scale. Patient is assessed for performance with different activities of daily living.

- patient medical history, health status, mental test score and Barthel index
- details about indwelling urinary catheter insertion
- attempt at indwelling urinary catheter removal
- outcome after removal of indwelling urinary catheter

Functional assessment on admission consisted of mental score examination, (Figure I) and calculation of Barthel Activities of Daily Living (ADL) status, (Figure II).

**Outcome Measures**

The number of patients who were tried without an indwelling urinary catheter was noted. The number of patients who remained continent, those who required use of containment, and those who required re-insertion of indwelling urinary catheter were recorded.

**Results**

A total of 125 patients (48 males) were included in the study. Male:Female sex ratio was 1:1.6.

	Males	Females	Total
ZCH	26	38	64
SVPR	22	39	61
Total	48	77	125

**Table I** - Distribution of study patients.

The age distribution shown in Table II shows all the patients with ages ranging from 60 to 99 years. A peak is reached at 80-84 years when both sexes are considered.

Age	Males	Females	Total
60 - 64	3	0	3
65 - 69	3	3	6
70 - 74	4	6	10
75 - 79	9	13	22
80 - 84	11	32	43
85 - 89	13	14	27
90 - 95	5	7	12
96 - 99	0	2	2
Total	48	77	125

**Table II** - Age and sex distribution of study patients.

Patients were referred to both hospitals from diverse origins as shown in Table III. 82% came from St. Luke's Hospital (103 patients), mainly from the Departments of Medicine, Surgery and Orthopaedics. 11% were admitted from home, and 5.5% were admitted from other nursing/residential homes.

Origin	Males	Females	Total
Medicine	21	46	67
Orthopaed	3	7	10
Surgery	11	15	26
Home	10	4	14
Nursing homes	2	5	7
Other	1	0	1
Total	48	77	125

**Table III** - Origin of study patients.

Tables IV and V show the number of patients from different origins who were admitted with an indwelling urinary catheter and compares them with the total number of admissions to Zammit

Clapp Hospital or St. Vincent de Paule Residence from that same origin during the study. It can be observed that some departments have a relatively higher ratio of referrals with an indwelling catheter. The reasons behind this are complex and could include: the nature of the underlying diseases, surgical operations, selective referring, expertise of the department, motivation of staff or different nursing attitudes.

Zammit Clapp Hospital			
Origin	Total referrals 1-6/93	Catheterised referrals 1-6/93	Percentage catheterised
Medicine	74	30	40%
Surgery	19	15	79%
Orthopaedics	70	5	7%
Home	164	7	4%
Other	19	7	36%

**Table IV**

St. Vincent de Paule Residence			
Origin	Total referrals 1-6/93	Catheterised referrals 1-6/93	Percentage catheterised
Medicine	74	37	50%
Surgery	18	11	61%
Orthopaedics	10	5	50%
Home	67	7	10%
Other	18	1	6%

**Table V**

The mean hospital stay for catheterised patients rehabilitated at Zammit Clapp Hospital was 30 days. There was no observable difference between sexes. This contrasts with the mean length of stay of all patients admitted to Zammit Clapp Hospital which was 22 days.

The length of stay at St. Luke's Hospital prior to transfer to either hospital was also assessed. Patients admitted to Zammit Clapp Hospital are referred, or considered for admission, at an earlier date than patients admitted to St. Vincent de Paule. The mean hospital stay was 20 days before admission to Zammit Clapp Hospital, and 60 days before admission to St. Vincent de Paule Residence.

Mean Mental scores were 5.9/10 and 4.4/10 for Zammit Clapp Hospital and SVPR patients respectively. Mean Barthel ADL scores were 4.5/20 and 4.2/20 for Zammit Clapp Hospital and St.

Vincent de Paule patients respectively. A poorer outcome was noted in patients with a mental score of less than 5/10. Only 5 out of 57 patients in this group were continent at the third month follow up. Of the 68 patients with a mental score higher than 5/10, 29 were successfully trained without an indwelling urinary catheter. A difference in outcome is noted when comparing the success rates achieved by the two units. In the group of patients with a mental score higher than 5, continence rates were better in patients from Zammit Clapp Hospital (23 out of 41 patients) than in patients from St. Vincent de Paule residence (6 out of 27 patients).

Many patients admitted were given a trial without catheter. Of the 64 patients admitted to Zammit Clapp, 43 (67%) patients were tried without catheter, while only 23 out of the 61 patients admitted to St. Vincent de Paule (38%) were managed similarly.

	ZCH	SVPR	Total
Total patients	64	61	125
Catheter removal	43	23	66

**Table VI** - Number of patients who had an attempt at urinary catheter removal.

This difference reflects either the type of patient admitted to the different units (at Zammit Clapp Hospital patients are admitted if they can be improved in order to return to the community, while at SVPR admissions are mostly highly dependent patients), or else it could result from different facilities, resources and attitudes.

Patients in whom no attempt is made to remove the catheter usually have multiple problems including dementia (average mental scores for this group of patients was 3.0/10 for ZCH patients and 3.38/10 for SVPR patients). A number of patients had chronic outflow obstruction and had failed previous trials without catheter. In some patients the presence of deep sacral ulcers favoured the use of an indwelling catheter to avoid contamination and infection.

66 patients had a trial without catheter at some stage during their admission. The outcome at 15 days, at 3 months and at 1 year are shown respectively in Tables VII, VIII and IX.

Indications for the initial catheterisation prior to referral to Zammit Clapp Hospital or St. Vincent de Paule Residence were identified by examining the case notes, nursing notes and charts. Occasionally, there was more than one indication in the same patient.

	ZCH	SVPR	Total
Continent	36	13	49
Nappies	4	1	5
Catheterised	2	8	10
Died	1	0	1
Lost to follow-up	0	1	1

**Table VII** - Outcome at 15 days in patients who had a trial without catheter.

	ZCH	SVPR	Total
Continent	27	9	36
Nappies	4	0	4
Catheterised	8	12	20
Died	2	2	4
Lost to follow-up	2	0	2

**Table VIII** - Outcome at 3 months in patients who had a trial without catheter.

	ZCH	SVPR	Total
Continent	26	3	29
Nappies	1	0	1
Catheterised	3	17	20
Died	10	2	12
Lost to follow-up	3	1	4

**Table IX** - Outcome at 1 year in patients who had an attempt at removal of the catheter.

In 34 patients (25%) the reason for catheterisation remained unknown. This includes the worrying practice of urinary catheterisation as soon as a patient had one episode of incontinence or if severe urgency or frequency of micturition was experienced. The main reasons for use of indwelling catheters included severely

ill patients who required monitoring of urinary output, severe uncontrollable incontinence with pressure ulceration of the skin, and retention of urine. A frequency distribution of these different indications is illustrated in Table X.

Indication	ZCH	SVPR	Total
Monitoring	8	12	20
Severe incontinence/ Ill health	7	39	46
Acute retention	9	5	14
Chronic retention	5	0	5
Per-operative	7	1	8
Haematuria	1	2	3
Long-term	4	0	4
No reason	22	12	34

**Table X** - Frequency distribution of different indications for catheterisation

### Discussion

This study gives insight into the paucity of documentation of this procedure when performed by doctors in hospital. Catheterisation was mentioned in the nursing notes in 75% of cases, while in the medical notes it was only mentioned in 17%. Both doctors and nurses should ideally agree that it is required, and that adequate record of the reason for catheterisation, catheter type and size, and the long term plans, are documented in the case notes as shown in Figure III.

- Date and time of procedure
- Indication
- The person who advised the procedure
- The person who performed the procedure.
- Details of materials and equipment used e.g. type of catheter, size, balloon volume
- Place where the procedure was performed e.g. treatment room, bedside, theatre, etc
- Important observations e.g. volume of residual urine, presence of pus with urine specimen
- Whether a catheterised sample of urine was taken for microbiological analysis
- Long term plans

**Figure III** - Information to be entered in case notes whenever urinary catheterisation is performed.

With respect to the indications for catheterisation, one observes that in a high percentage (59%) of cases, no indication was present, or it was difficult to see why a catheter was required. In fact in 39 out of 61 patients entering SVPR there seemed to be no real reason besides "severe incontinence". Could these patients have been managed otherwise? Perhaps incontinence pads were not readily available, or the staff were not aware that nappies are safer and more appropriate for that type of incontinence.

If one looks at the different origins of patients coming to Zammit Clapp Hospital, one sees that in patients coming from medical and surgical wards, there is a large number of patients who are catheterised and who need a trial without catheter. Patients coming from orthopaedics or home, less often have an indwelling catheter, or else it had been removed successfully prior to transfer. As regards admissions to St. Vincent de Paule, half of all cases from each department have an indwelling catheter especially those coming from surgery.

There are three requirements for successful toilet retraining:

1. Expertise in management of incontinence of urine in the elderly. Each member of the multidisciplinary team is involved: the medical officer has to identify factors which might interfere with successful retraining e.g. to treat diabetic polyuria by controlling diabetes or by reducing drugs like diuretics and sedatives or by recognising and treating faecal impaction; nurses are involved in performing regular toileting methods, supporting the patient and encouraging continence; physiotherapists and occupational therapists are improving mobility and independence in activities of daily living.

2. By adequate patient support in the community. In this study, there is a small number of patients who were continent at discharge from hospital but required alternative methods after the three month period of follow-up. This is because in hospital, they had maximal support with behavioural techniques, physiotherapy and occupational therapy. At home some patients tend to lose their mobility and become dependent on their carers who might be unable to cope. In this situation it is necessary to continue supporting the patient by providing community nurses, home helpers or follow-up at the Day Hospital for therapy or other care. The aim is always to keep the patient as independent as possible.

3. Mental faculties. The results also show that patients with an impaired mental test score perform worse than those with good mental capabilities. In these patients there is loss of the cerebral centres controlling continence, and it is more difficult to succeed. It is still necessary to exclude factors which might aggravate the incontinence, and to eliminate these as quickly as possible or institute the appropriate therapy. e.g. timed voiding or nappies.

### **Conclusion**

A significant number of patients will perform well when urinary catheters are removed. The outcome depends greatly on good geriatric care

both in hospital and in the community. Much has been done to improve the support of our elderly in the community by providing home helpers, telecare services and community nursing. Provision of free incontinence pads/toileting aids to all those who cannot afford to buy them will help to decrease the incidence of improper management.

The quality of life of our elderly patients needs to be improved. The old lady immobile in bed with raised bed sides and with a dangling catheter bag should be a rare sight.

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