Effectiveness of Different Methods

Effectiveness of Three Methods of Periurethral Hygiene in Urinary Catheterized Surgical Female Patients.

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Abstract

THIS study is an attempt to find out the effectiveness of three methods of periurethral hygiene (with Boiled water, Normal Saline and Savlon 1:100) in catheterized female surgical patients. Data was obtained from a sample of 60 patients with sterile urine from the Nehru Hospital, P.G.I. Chandigarh. They were randomly assigned to three experimental groups. The null hypothesis was tested. Different periurethral hygiene methods were applied to different assigned group subjects till the catheter is removed. The periurethral swabs for culture were analysed. The periurethral hygiene with Savlon 1:100) was found to be more effective than other two methods ($x^2=6.66$, d.f. 1, $p.<0.05$ and $p<0.01$). The null hypothesis was rejected ($x^2=11.80$, d.f. 3, $p<0.05$ and $p<0.01$).

Introduction

Periurethral infection following catherization is one of the causes for an ascending urinary tract infection in surgical female patients. About 10% of all patients admitted in general hospital need urethral catheterization[1] and bacteriuria can occur in 50% of patients after 24 hrs. and increase to 98 to 100% after 4 days[2] resulting increased hospitalization to an average of 2.4 days[7]. Various methods like closed urinary drainage system, antibacterial lubrication, catheter irrigation are mentioned in the literature but periurethral hygiene received a little attention and less actual in practice. In order to minimize the complications resulting catheterization and cost of care, periurethral hygiene is an importance. With the help of experts, three methods of periurethral hygiene (which differ in using different solutions i.e. Boiled water, Normal Saline, and Savlon (1:100) but the technique which is cleaning of meatal catheter junction under aseptic technique, remains the same) were chosen to (i) study their effectiveness and (ii) to find out the most effective method to prevent periurethral infection (presence of pathogenic organisms in urethral swab). The null hypothesis that there is no difference between three methods of periurethral hygiene to prevent periurethral infection was tested.

Material and Method

An experimental approach was adopted to gather the data with the help of interview schedule and laboratory proforma. Pilot study was conducted with 6 patients Sixty patients of abdominal, cranial and chest surgeries with sterile urine were studied in their respective units preoperatively. The subjects were assigned to three experimental groups by simple random method They were catheterized with sterile urinary catheter under aseptic technique before sending to operation theatre. After 6 hrs. of catheterization, three methods of periurethral hygiene i.e with Boiled water, Normal Saline and Savlon (1:100) were applied to subjects of their respective experimental groups twice a day till the catheter was removed (the reliability of these solutions were tested as sterile before using it). The urethral swab (1 cm away from meatus) were taken as one prior to catheterization, other 6 hrs. after catheterization and then at the time of removal of catheter.

Results and Discussion

The effectiveness of three methods of periurethral hygiene was determined with the analysis of positive bacterial urethral swab cultures (Fig. 1), bacterial content of urethral swabs (Fig. 2) and by x^2 (Chi square) statistical method and the null hypothesis that there is no difference between three methods of periurethral hygiene was tested by the method of additive x^2 values (Table I).

The average infection rate of all subjects was found 28.3% which is in confirmation of earlier studies[6 8 10], which showed the urethral infection rate varies from 24% to 100% before catheterization. After 6 hrs. of catheterization infection increased to average 70%. This increase of infection rate was also reported[4 5] as 40% and 95% After giving care, infection rate decreased from 60% to 35% with Boiled Water, 70% to 45% with Normal Saline and 80% to 40% with Savlon (1:100).

The length of study of catheter was 54 hrs. It is also found that Esch. coli organism was the common in all the infected cases before catheterization as also reported by earlier study.[9] But after 6 hrs. of catheterization staphylococci organism grew more (in 43.3%), supported by another study.[5] There was no effect of boiled water. Normal Saline and Savlon (1:100) on Klebsiella, Proteus and Streptococci. But Savlon was fairly more effective than Water and Normal Saline to reduce Esch. coli and Staphylococci.

Statistically after applying x^2 method, for the

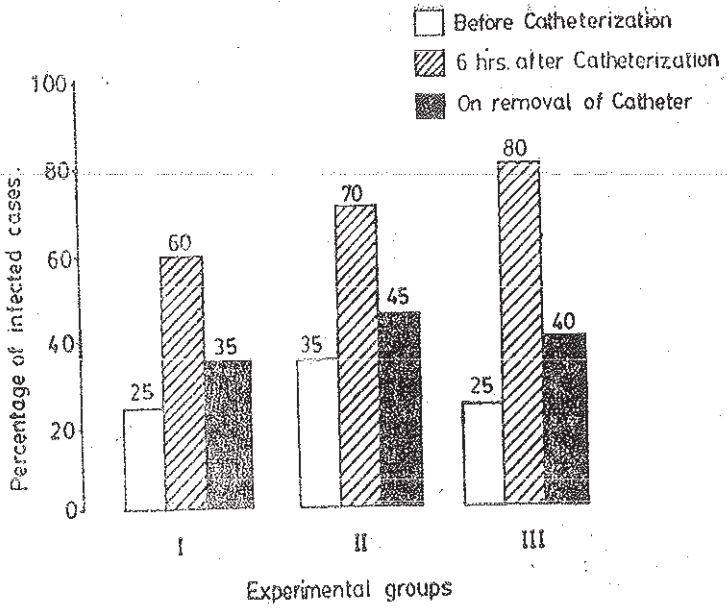

Fig. 1 POSITIVE BACTERIAL URETHRAL SWAB CULTURES

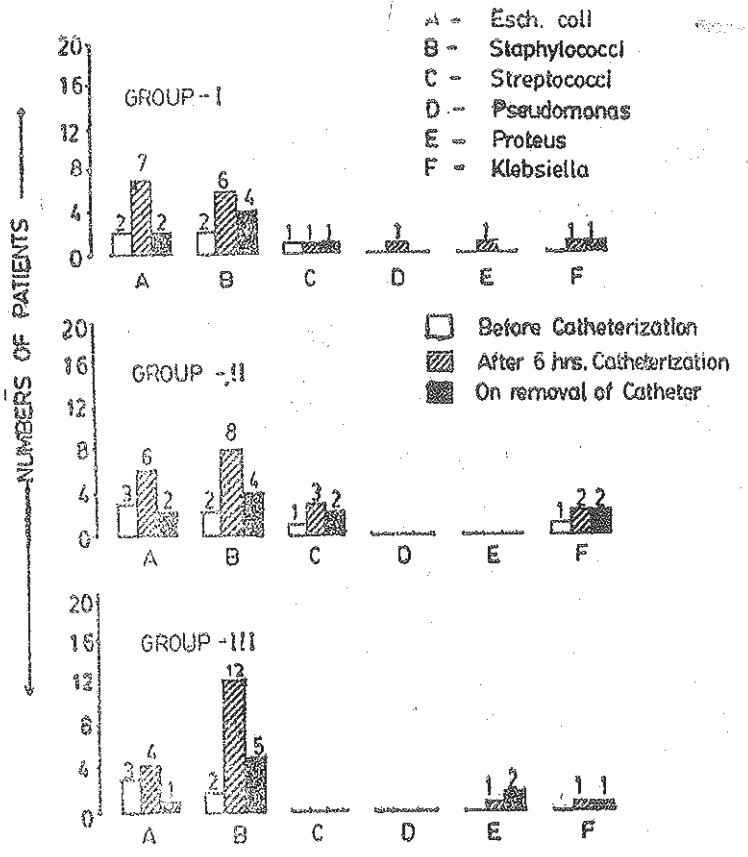

Fig. 2 BACTERIAL CONTENT OF URETHRAL SWABS IN THREE EXPERIMENTAL GROUPS

effectiveness of three methods it was found that there is non-significant effect of Water and Normal Saline ($p \geq 0.05$) but significant effect of Savlon (1:100) ($p > 0.01$) to prevent periurethral infection. Hence savlon (1:100) proved to be the most effective method to prevent periurethral infection.

The null hypothesis that there is no difference in effectiveness of three methods of periurethral hygiene was rejected as there is significant difference in effectiveness of three methods because by applying additive x^2 values, the calculated value of x^2 for 3 degree of freedom at 5% and 1% levels of significance is much higher than the table value ($x^2 = 11.80$ d.f. 3, $p < 0.05$ and $p < 0.01$).

Based on this, it was recommended that there is a greater need for periurethral hygiene, not only cleaning the area but the use of some antiseptic solution as well. The administration should take some actions to improve the existing practice of catheterization and periurethral hygiene. This situation can also be corrected through promotion of health care services and by educating women regarding vulval perineal hygiene through a set of organised measures.

Acknowledgements

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Table I

Statistical Interpretation of Stated Hypothesis

Experimental group	*Value of* X^2	*Degree of freedom*	*Effectiveness*
I	2.58	1	P>0.05 (non-significant)
II	2.56	1	P>0.05 (non-significant)
III	6.66	1	P<0.05 P<0.01 (significant)
Total	11.80	3	P<0.05 P<0.05 (significant)

BRANCH AFFAIRS

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1. Study of knowledge and practice of mothers for the use of the oral rehydration solution as a management of diarrhoea among children.

2. Study of weight in relation to age, sex and order of birth among infants of a resettled colony, U.T. Chandigarh.

3. Study to assess the knowledge of senior secondary school students regarding population problem and its solution.

The audience appreciated these studies, as it created an awareness for such studies that could be conducted elsewhere too.

Mrs. S.A. Samuel, in her concluding remarks appreciated the cooperation of the members for the successful one day conference and said that members should pool more suggestions for the future conferences and one should not underestimate our Association's enormous power to promote improved services to the mothers and children.