

Evaluation of Risk Factors of UTI With Reference To Percentage of Deep Thermal Burn Patients

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I. Introduction

Burns require special attention in Developing country like ours. Urinary tract infections are relatively common in burn patients accounting for approximately 20 to 30% of infections in this setting. Studies suggest that the risk of UTIs is higher in ICU than elsewhere in the hospital [1]. Cohort studies shows age, sex, previous medical illness, duration of catheterization as risk factors for the development of urinary tract infections [2,3,4]. Despite all the advances in burn wound management and the availability of specialized care for burned patients, infection remains the leading cause of morbidity and mortality in thermally injured patients. Burned patients experiences immunosuppression due to a multiple factors, like loss of skin barrier, dermal necrosis, protein rich exudate, complement and other defense mechanisms, prolonged hospital stay. In developing countries Infection increases due to Overcrowding and understaffed to care for these patients. Interventions to prevent catheter-related UTIs have largely focused on removal of unnecessary catheters, with less evidence found to support the effectiveness of interventions aimed at improving insertion and maintenance [5]. We aimed to describe risk factors for urinary tract infection in burn at our hospital to inform future interventions to prevent this common infection.

II. Material and method

This prospective study (Total 80 patients) was performed in Department of General Surgery Burn unit for a period of 9 months from Jan 2018 to August 2018 at Anmmch, Gaya. All thermal deep burn patients >30% who were Catheterised in our hospital either in Emergency or Burn ICU were included in this study. Patients catheterized outside or previously diagnosed UTI were excluded. All burn patients after 72 Hrs of catheterization underwent urine routine microscopy and culture sensitivity in Department of Pathology/ Microbiology Anmmch, Gaya. Symptomatic urinary tract infection was defined according to the NHSN definitions current at the time of the study [6]. Diagnostic criteria were: The presence of at least one symptom (fever, frequency, urgency, dysuria or supra pubic tenderness) with a positive urine culture with $>10^5$ organisms/ml, or two symptoms (as above). Asymptomatic bacteriuria was defined as presence of a urinary catheter with a positive urine culture with $>10^5$ organisms/ml with no fever, urgency, dysuria or supra pubic tenderness.

III. Result

Out of 80 patients we found 50 patients with symptomatic urinary tract infections and 30 patients with asymptomatic bacteriuria between jan 2018 to august 2018. In patients with symptomatic UTIs, organisms isolated from urine included Escherichia coli (70%), Enterococcus spp. (14%), Klebsiella spp. (6%), Pseudomonas spp. (4%), Enterobacter (6%) whereas in patients with asymptomatic bacteriuria, the organisms isolated were similar including E. coli (65%), Enterococcus spp. (20%), Klebsiella spp. (12%) and enterobacter (3%). We found Patients having > 80% of burn All have bacteriuria in which 40 % was symptomatic.

Findings Total 80 Patients

	Symptomatic Bacteriuria	Asymptomatic Bacteriuria
Number	50	30
Age ,yrs(median)	45	38
Sex	Male-22 Female-28	Male 12 female-18
Percentage of Burn > 80% (out of total 30 patients)	12	18
Site of catheterization Emergency (60) Burn ICU(20)	E(40) B ICU(12)	E(20) B ICU(8)

In patients with symptomatic UTIs, a higher proportion had catheters placed in the emergency department than in burn ICU patients. Higher proportion of symptomatic UTIs were seen in deep burn involving perineal region; malnourished with less BMI , having comorbid conditions .

IV. Discussion

In this study, we found that UTIs were common when the catheter was placed in Emergency. Comorbid patients and highly immunosuppressed patients were slightly increased risk of UTIs. we also found that the majority of infections occurred on 7th day of Catheterization. This is consistent with studies suggesting that interventions focused on early removal of unnecessary catheters are the most effective intervention [7,8]. Catheter Care is very important in these patients. we found that perineal burn patients are at risk of symptomatic UTIs at our institution. In our hospital lack of aseptic insertion technique in emergency , lack of catheter care being an important addressable risk factor for UTIs in our hospital. This situation warrant proper updated day to day training regarding catheterization and awareness regarding catheter care.

V. Conclusion

In developed countries, changes in nursing practices and patient isolation have played a significant role in reducing the incidence of these infectious complications [9]. Overcrowding and undertrained staff using aseptic measures ,limited health care professionals are the main causes of increased UTI in our hospital. Time to time updated proper catheterization technique by audio-visual method have to be given. Avoiding of Unnecessary catheter, catheter care awareness ,segregation of highly infected burn wounds, Early removal of catheters are the most effective intervention can be done to decrease chances of UTI.

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