

# Clinico Microbiological Study of Infection In Burn Patients at BPKIHS Teaching Hospital

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## ABSTRACT

**Background:** Each year around 2,00,000 peoples globally are injured by burn and 1,00,000 of these seek medical attention out of which 10,000 lose their lives. prevention is better in burns. The exact data about burns patient in Nepal is not known.

**Methods:** Prospective observational study carried out at surgical ward of BPKIHS Teaching Hospital between 15 May 2001 to 14 May, 2002 i.e. one year altogether.

**Results:** There were total 95 cases of burn patients admitted and managed by BPKIHS Teaching Hospital during that periods. Males were 40% (38) and Females were 60%(57). Accidental burns injury was 90.55% (86) and flame burns were 83%(79). Mixed infection in 36%, Acinobacter in 32% and pseudomonas in 14.4% found in wound swab cultures. Ofloxacin was found sensitive in 91.6%.27% (26) patients expired in our study.

**Conclusion:** Mortality is high in our study because of Major burn patients came late in our Teaching Hospital for treatment.

**Keywords:** Burn patients; BPKIHS Teaching Hospital; wound swab cultures.

## INTRODUCTION

Man has probably survived because of the discovery of fire. Unfortunately injuries by fire are an inseparable consequence of its discovery. It is estimated that Globally around 2,00,000 peoples are thus injured every year by burns and 50% of these seek medical attention out of which 10,000 lose their lives.<sup>1,2</sup>The actual number is probably more than this. Lack of medical facilities in places where would expect these accidents to occur most places where would expect these accidents to occur most i.e.in the most backward areas, where open fires are commonly used for cooking food. For treatment of burns patients people and government paying a lot of money and many people are living with burn contractures terrible life still. In 1947 Pulaski and Tennison devised the rule of Nines and Wallace in 1951 referred to it in his monogram on Burns.<sup>3</sup> Ambroise pare accurately described the appearance and features of the three degree of burns, as we know today. He has also described burn contractures. In ancient Rome, celsus (170AD) described treatment with honey and barn.<sup>4</sup> For First degree burns usually no treatment requires. For second degree burns Dressing is usually sufficient. For Deep burns Tangential excision and subsequent

skin graft is indicated.<sup>5</sup> There is controversy about the use of routine antibiotic administration. Monitoring for the onset or progress of infection should done by clinically and cultures.<sup>6</sup> There are many fluid Therapy Formulas for burns resuscitation but Parkland Formula is more standard.

## METHOD

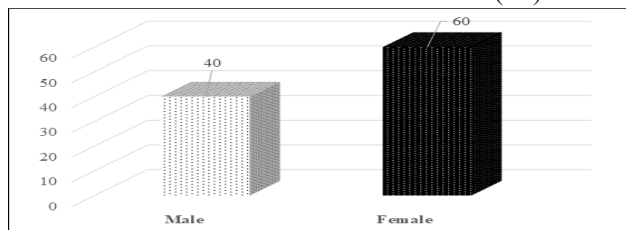
This study was conducted prospectively on burn victims who were admitted in the surgical ward of BPKIHS Teaching Hospital over a periods of one year from 15 May, 2001 to 14 May, 2002. On their arrival in the casualty Department, a detailed history was taken and started fluid Resuscitation by parkland formula. Management of pain, skin cover with dressing were done. Investigations sent for analysis to know the exact condition of patient. Wound swab and blood cultures sent during admission of patients.

## RESULTS

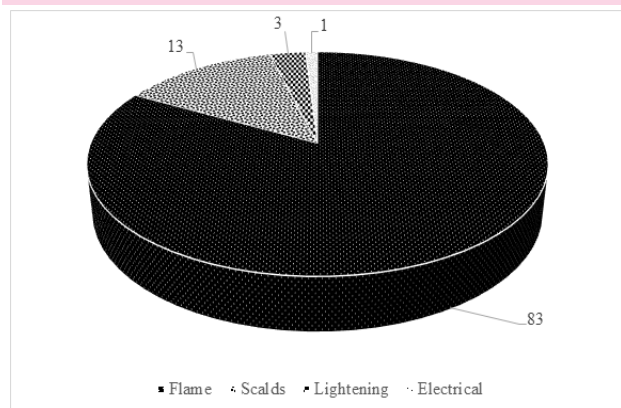
A Total of 95 cases of burns were admitted and managed at the BPKIHS Teaching Hospital. There were 60% (57) Females and 40% (38) were Male. The commonest cause of burns was accidental burns in 90.55% (86) cases followed by suicidal in 8.4% (8) cases and homicidal 1.05%.<sup>1</sup> The commonest types of

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burns was Flame burns which was 83.1%(79) cases.



**Figure 1. Distribution according to sex.**



**Figure 2. Types of Burns in Diagram**

In all the patients with burns Dressing was done usually in alternate day. Debridement done bedside or in operation theatre. Amongst them Debridement under GA done for 17.85% (17) cases, escharotomy done for 6.3%(6) and Fasciotomy done for 4.2% (4) cases .Only in 8.4% (8) cases did Skin graft i. e. mostly SSG. In this study almost 55% burns patient came after 9 hrs of burns time. A large number of patients i.e. 61 patients (64.30%) had both 2<sup>nd</sup> degree and 3<sup>rd</sup> degree burns. Bacteriological profile in Burn patient was analysed. In wound swab cultures mixed infection found in 36%, Acinobacter in 32% and pseudomonas in 14.4 % cases found in this study. Ofloxacin found sensitive in 91.6% cases. Blood cultures was positive in 28 % (27) cases and majority was mixed growth 30% (29) cases. Antibiotic sensitivity was same as in wound swab cultures. Pseudomonas colonization occurs almost 60% in our study by the 14<sup>th</sup> day which was sensitive to ofloxacin 50% and 45% to vancomycin. In this study out of 95 patients 27%(26) patients expired because they came late for hospital treatment. Major cause was due to inadequate treatment of shock 17.4% (17) and 9.6%(9) patients died of septicaemia and Multiorgan

failure after a week of admission.

## DISCUSSION

In this study 95 patients of burns was admitted over year which was constituted 0.55% of total hospital admission<sup>7</sup>, which is less as compared to 1.4% mentioned in a study by Sen et al<sup>8</sup> and 1.02% in a study by Vaishnav.<sup>9</sup> The low rate of admission in our hospital may be due to the fact that our hospital being a tertiary referral teaching hospital. Burn patients comprised 2.85% of total surgical admission<sup>7</sup> as compared to 3.29% as reported by Vaishnav.<sup>9</sup> Females (60%) outnumbered males (40%) in the ratio of 1.5:1 in our study as compared to 9:11 in USA<sup>10</sup> and 6:4 in india. This could be because most of the females are housewives and from villages depend on woodfire ,stove and gas for cooking food. Flame burns was commonest cause of burns seen in 83.2% of patients in our study and it ranged from 29 to 71% in varies studies done in India.<sup>11</sup> Accidental burns constituted 90.55% in our study and 8.4% suicidal which varies from other studies.<sup>11</sup>

In our study wound swab cultures 36% was mixed infection, Acinobacter in 32% and pseudomonas in 14.4%. A study in burns centre, Tehran, Iran shows that frequency of pseudomonas was 87% & and staphylococcus was 9%.<sup>12</sup> In our study ofloxacin was sensitive in 91.6% patients where as in other study 60% sensitive to ofloxacin and 30% sensitive to Amikacin.<sup>12</sup> In our study blood cultures was found positive i.e. 22.5% where as in other studies 30.4% to 87.7%<sup>13</sup> The reason for high blood cultures negativity in our study might be because of our patients were already on antibiotics mostly.

In our study 27.4% patients could not survive. In one study in India it was 28.8%<sup>14</sup> which was almost same as ours but in USA the mortality was low (3-5%).<sup>15</sup>

## CONCLUSION

In our study major burn patients came late for treatment in our centre and the mortality was relatively high than western countries. So, thinking this PREVENTION IS BETTER THAN CURE i.e.

Health education requires those peoples who lives in rural areas. We also needs burns treatment protocol for primary level hospital mainly.

**Conflict of interest:** None

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