

CHANGING TRENDS IN BACTERIOLOGICAL PROFILE WITH ANTIBIOTIC SENSITIVITY PATTERN IN BURNS.

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Summary

Objectives:

- 1) To study the changing trends of antibiotic prescription in burns in patient over 5 years
- 2) To analyze the bacteriological profile with antibiotic sensitivity pattern.

Materials and methods:

A retrospective observational study of 543 burns in patients admitted over a period 5 years (June 2001-may2006) in burns ward at St John medical college hospital, Bangalore a tertiary care referral centre for burn patients. Data was collected from medical case records in a proforma which was subjected to year wise descriptive analysis.

Results: The male female ratio was 1.35:1, males were more prone for electrical burns 95%, mean age was 26 years. Aminoglycosides were the most commonly prescribed antibiotic with its prescription increasing from 23% to 39%, vancomycin from 1 to 4% and 3rd generation cephalosporin increased to 26%, beta lactam antibiotics prescription was decreased from 24% to 8%. Average number of antibiotics prescription was also decreased from 3.6 to 3.1 per prescription preferred route of administration was systemic. The organisms isolated were pseudomonas sensitive to cefeperazone and sulbactam combination and staphylococcus to vancomycin. sensitivity to these drug is also decreasing

Conclusion: Males are prone for electrical burn. cephalosporins have taken over aminoglycosides and vancomycin has taken over the beta lactam antibiotics in treatment of burn infection .The change in prescription pattern of antimicrobials is due to increasing resistance among the isolated bacterial strains.

Key words : burns , antibiotic , gentamycin

Introduction

Despite many medical advances, burns continue to remain a challenging problem due to the lack of infrastructure and trained professionals as well as the increased cost of treatment, all of which have an impact on the outcome. Previous epidemiological studies from different parts of India [1],[2],[3],[4],[5],[6] have revealed that burn cases are prevalent all over the country. Most of these patients are poor and hence, seek healthcare from government hospitals. There is no information on the pattern of outcomes among burn patients in relation to clinical aspects in India. [7] Hence the present study was planned ,

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Results

The male female ratio was 1.35:1, males were more prone for electrical burns 95%, mean age was 26 years. Aminoglycosides were the most commonly prescribed antibiotic with its prescription increasing from 23% to 39%, vancomycin from 1 to 4% and 3rd generation cephalosporin increased to 26%, beta lactam antibiotics prescription was decreased from 24% to 8%. Average number of antibiotics prescription was also decreased from 3.6 to 3.1 per prescription preferred route of administration was systemic. The organisms isolated were pseudomonas sensitive to cefeperazone and sulbactam combination and staphylococcus to vancomycin. sensitivity to these drug is also decreasing .

Discussion

Understanding the epidemiological aspects and clinical details is helpful to find out the lacunae in burns' treatment and the need to improve the same. In the present study, 543 cases of burns were hospitalized over a period of 5yrs in a burns unit of a large multispecialty teaching hospital with 2200 beds in south india.

Eighty six out of 150 patients died and the in-hospital mortality was 57.33% which is consistent with the series of Subrahmanyam [1] (56.5%) in Solapur, Maharashtra, Bilwani et al . [3] (58.26%) in Ahmedabad, Gujarat and Jayaraman et al . [8] (52.33%) in Chennai, Tamil Nadu. It was lower than the observations of Puri [9] (90.2%) in Pune, Maharashtra but higher than that of Gupta et al . [10] (48.33%) in Jaipur and Sarma et al . [11] (18.3%) in Digboi, Assam. The low mortality rate in Sarma's series could be attributed to a higher proportion of industrial accidents and lesser homicidal and suicidal patients. The higher mortality rate in the present series could be attributed clinically to burns involving more than 55% TBSA and to nosocomial infections among others. Among women, 40.9% of the victims belonged to the age group of 15 to 24 years [2] and the triggering factor for burns were young age at the time of marriage combined with inability to cope with the physical and psychological stress of marriage, [2],[6],[12],[13] harassment from parents-in-law,

inadequate precautions during cooking and wearing of the loose Indian sari. [3] In contrast, 37% of men belonged to the age group of 25 to 34 years and the factors attributed to burns were unemployment, depression and stressful situations. TBSA observed among the age group 25 to 34 years was the highest and was due to flame burns. Hence, burns among them were likely to be intentional. Analysis of death in relation to TBSA and the number of days survived among those who died, revealed that those with TBSA of 81 to 100%, 61 to 80%, 41 to 60% and 31 to 40% expired within two, four, six and eight days respectively. As all those with burns of TBSA < 30% survived and those > 55% died, it is considered that the vulnerable group were those with burns of TBSA between 30 to 55% who need more care and support to overcome multiple internal and external factors contributing to the mortality. Hence, in the event of mass casualty due to burns or in areas/hospitals with suboptimal facilities, we suggest that priority be given to those patients with burns of TBSA of 30 to 55%. [14] Flame burns accounted for 86.6% of all cases. Although accidental flame burns was the most common cause (57%), it was far less when compared to the series of Subrahmanyam (80%) and Bilwani *et al.* (77%). This variation may be attributable to the socio-environmental factors discussed earlier. Kerosene stoves contributed to 48% of accidental burns when compared to 2% due to gas stoves. As most of the kerosene stoves are of inferior quality, [5] the occurrence could be greatly reduced by increasing consumer awareness, enforcing quality standards for stoves or replacing kerosene stoves by gas stoves. Burns due to industrial accidents were far less encountered during the study and observed in only two cases - one from the brick industry and the other from the fire cracker industry. The reason for the low prevalence of industrial accidents was due to the predominantly agrarian rather than industrial population around the study area. Scalds were observed in the "extremes of age" group because of the carelessness and restlessness associated with children and decreased mobility and slow reflexes in the geriatric population. The critical area of involvement of burns observed was face (58%), neck (68.7%), hands (66%) and multiple areas in many cases, which enhances the work load on the unit caring for those who survived. Although pouring water is the best way to quench the fire, it was known and practiced in only 55% of the cases. In this study, the practice of other conventional methods had resulted in deep burns and contributed to high morbidity and mortality. Many patients and their relatives in this group actually believed that pouring water was harmful to the patient.

As burns are very frightening and catastrophic, patients go to the local practitioner for first aid. When prehospital treatment was analyzed, 83 patients were referred immediately due to the severity of burns and the rest were given substandard care. It was disappointing to note that doctors too practiced unconventional techniques (fountain pen ink and herbal preparations) as first-aid measures to treat burn victims. As their treatment modalities reflected their suboptimal knowledge of treatment of burns, these doctors require continuing medical education. [15] It is also recommended that educational authorities should post interns during their undergraduate education to burns wards for at least seven days to learn the basics of burn injuries and management of the same. The study revealed that burn surgeons have to initiate efforts to educate the public and health professionals regarding first aid for burns and to remove the myths about burn treatment. The importance of pouring water immediately to quench the fire on the victim should be communicated to all through mass media.

The strengths of this study were the prospective nature of the study, evaluation of individual cases by a single person (first author), confirmation by the second author and follow-up of the patients.

Conclusion

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Acknowledgement

The authors are grateful to the Principal, J. N. Medical College, Belgaum for providing facilities.

Thanks to Mr. A. V. Karvekar and Mr. M. D. Kankanwadi for their skilful assistance.

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