

Short communication

A 10-year audit of burns at Kalafong Hospital

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Abstract

Kalafong Hospital is a secondary hospital situated to the west of Pretoria. It serves as the regional burns centre for Gauteng province north of the Jukskei river. It mainly serves a poor population. This is a retrospective review of a 10-year period, looking at both numbers and the aetiology of burns treated by this unit. Only adult cases – patients over the age of 12 – were assessed. Over this period, a total number of 1046 patients were admitted and treated by this unit, consisting of 634 males and 406 females. The period covered, includes a period when the government has been expending massive amounts of funds to electrify townships and rural areas. Despite this, however, the majority of burn wounds are still caused by open flames and paraffin stoves.

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1. Introduction

Kalafong Hospital is a secondary hospital situated in Atteridgeville, Pretoria. In 1989, a burns unit was established under the then departmental head, Paul Bauling. This unit serves a area consisting of Gauteng north of the Jukskei river, the whole of Mpumalanga, parts of the North-West Province, as well as parts of Limpopo province. We performed a retrospective audit of a 10-year period in the unit, ranging from 1995 to 2004.

2. Methods

A retrospective audit was performed, utilizing original patient discharge summaries. The original summaries were extracted from departmental archives, and factors such as patient demographics, mechanism of injury, suicide attempts, as well as outcomes were analysed. The cohort consisted of adult patients (aged over 12 years) being treated by the general surgery department at Kalafong Hospital. The cohort represents all patients who required admission for their injuries, although burns ranged from relatively mild to fatal.

3. Results

A total of 1046 patients were seen over the period, consisting of 634 males (60, 6%) and 406 females (39%). In six cases, the gender of the patient could not be determined from the data. This represents an average of 104 patients per year (Fig. 1).

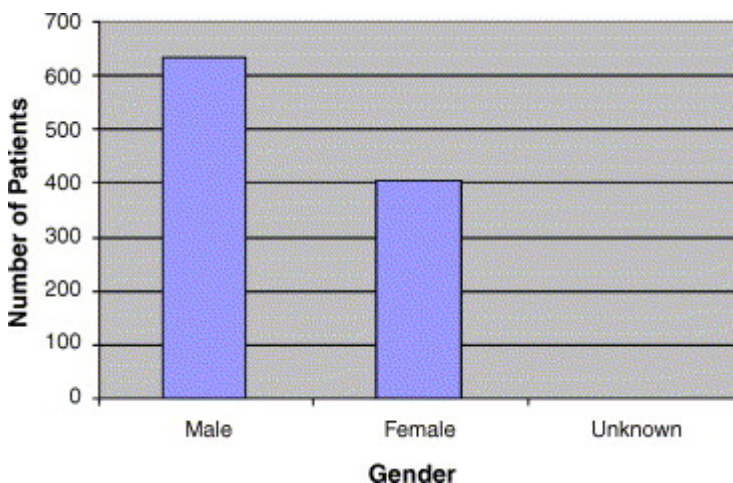


Fig. 1. Gender breakdown of the cohort.

The age distribution shows a tendency towards younger patients, with the largest single group of patients aged between 26 and 30 years. However, patients under the age of 12, who are treated by the paediatric surgery department, were excluded.

Accurate mortality figures were available from the period June 1998 until July 2005. In this period, our unit experienced 191 deaths. Figures covering the earlier period of the study were considered too inaccurate for consideration in this analysis. Of the 191 patients who died, 47% (89) were females, 39% (74) were male and 14% (28) were of indeterminate gender. The average percentage burn resulting in death in the cohort was 55% with a range of 12–100%. The average for the males was 53.45% and the females 55.1% body surface area burns.

There were 52 suicide attempts (5% of patients) recorded in this time period, of which 31 were successful, i.e. 60% of suicides were successful.

The most interesting aspect was the mechanism of injury: open flames 314 (30.2%), paraffin stove associated 271 (26%), boiling water injuries 210 (20%), unknown mechanism 111 (10.6%), petrol-related injuries 62 (6%), electricity 34 (3.3%), chemical burns 25 (2.4%), oil-related burns 16 (1.5%), lightning injuries 2, friction burns 1 (Fig. 2).

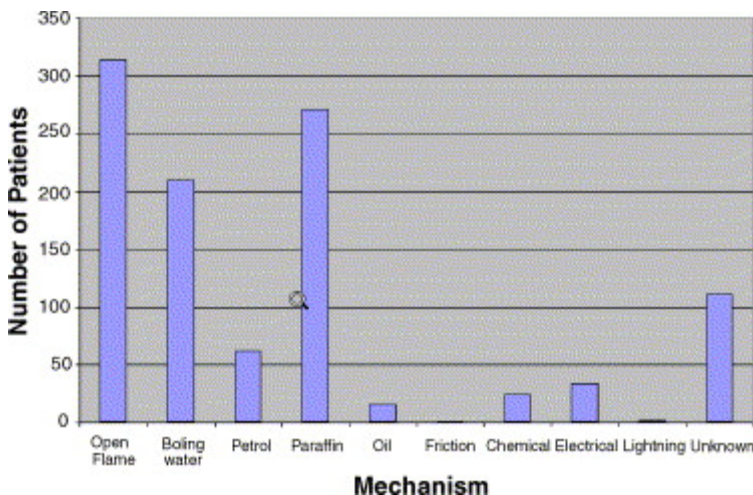


Fig. 2. Mechanism of Injury.

4. Discussion

Burns can be devastating. They have significant short- and long-term implications for the patient. They also have significant implications for the health-care system. The burns unit at Tygerberg Hospital have estimated the cost of treating a burns survivor at between R30,000 to R100,000 [1], placing a heavy financial burden on health-care funders. This paper presents an audit of injuries sustained by the community being served by our hospital. On the whole, this is a typical lower income group which we believe represents the typical population being served by most state secondary hospitals.

5. Age distribution of burns victims

Patients were assigned to an age bracket with 5-year increments. On this basis, the group most affected was the 26–30 age group comprising 18.5% of patients followed by the 31–35 group (16.6%) and the 21–25 group (14.8%), i.e. 50% of patients were grouped between 21 and 35. Since economically, this is the most important component of the work-force, this represents a heavy burden on society and the economy of the country. Furthermore, this is the group who is most likely to have dependents who rely on them, illustrating the ripple effect that a devastating burn wound can have. The age distribution may also represent the demographics of the informal settlement – the main contributor in terms of patient load – with a mostly younger population.

6. Mortality

Female mortality accounted for 47% of the total. This is out of keeping with the percentage female patients at 39%. This cannot be accounted for by the percentage body surface area which was almost identical in males and females, and suggests that wounds in females are being underestimated and less efficiently managed than male burns, or, the gender response is different.

7. Mechanism of Injury

By far the most common mechanism of injury was open flames (30.2%), followed by paraffin stove related injuries (26%).

In 1994 the South African government implemented the National Electrification Project. This was an attempt to redress the imbalances of the past, and electrify 2.5 million houses within 5 years. The project exceeded expectations, with just over 2.7 million new connections to the electricity grid. However, this has not borne the fruits expected. Expected monthly consumption for new connections was around 350 kWh per month, with actual consumption only averaging around 100 kWh per month [2]. The reason behind this is not difficult to find. People in the lower socio-economic bracket simply cannot afford electricity. Many of these people make use of prepaid electricity, obtained at various vendors in the form of a card containing a pin number. This number is then entered into the electricity meter. These consumers then pay a premium for their electricity – 43.12 cents (South African) – as compared to the average domestic consumer who currently pays a fee of 38.69 cents (South African) per kWh. According to the Health Systems Trust, in 2001 73.2% of households in Gauteng used electricity for cooking. However, when the breakdown is made according to ethnicity, only 39.3% of African households cook with electricity as compared to 95.9% of white and 97.2% of Indian households [3].

8. Conclusion

There is a very high morbidity and mortality associated with burns. These injuries are very expensive to treat. Interventions and education need to be aimed at young adults. More stringent standards need to be applied to all paraffin stoves sold in the country, whether locally manufactured or imported. Patients at risk of suicide attempts need to be identified. Electricity needs to be made more affordable to the most vulnerable members of society.

References

- [1] Paraffin Safety Association of South Africa web site,
<http://www.pasasa.org/pasasa/aboutus/> (last accessed 25 June 2006).
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- [3] Health Systems Trust. <http://www.hst.org.za/healthstats/29/data/eth> (last accessed 25 June 2006).

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