An Evaluation of Management of Transferred Pediatric Burn Patients

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Introduction:
- In Pakistan, burns cause over 2 million deaths per annum and around 35% of disability and disfigurement with long lasting effects.
- Safe transfer protocols which include provision of ambulance and properly filled referral forms should be adhered to, as per guidelines of American Burn Association (ABA).
- There is evidence that primary burn management applied in healthcare facilities in Pakistan is either insufficient or inefficient.
- Transfer and referral system is also full of flaws and this leads to an unprecedented increase in complication rate and mortality.
- The aim of study was to evaluate whether adequate initial management and safe transfer of pediatric burn Patients was carried out in our setup.

Patients and Methods:
- This prospective study was carried out in the Department of Pediatric Surgery, Mayo Hospital, Lahore, from 1st March 2017 to 31st May 2017.
- All burn patients (<13 years old) transferred from other hospitals of Punjab to the emergency were included in the study, if there was no history of child abuse, associated trauma or congenital anomalies.
- As initial management is same for all burn victims, so all types of burn (scald, flame, electric) were included after informed consent was taken from the parents.
- Patients were enrolled in the study after ethical permission with IRB number 225/RC/KEMU.
- Non probability convenience sample was used.
- Sample size was estimated using 95% confidence level, 5% precision with expected percentage of transferred burn patients as 8%.
- When total body surface area (TBSA) of burn was not provided on referral form or differed more than 5% from the calculations at admission, it was considered as discrepancy.
- When intravenous access was not taken and/or no isotonic fluid was administered before transfer or hypotonic solution was given, then it was considered as mismanagement.
- In case of inhalation injury, absence of endotracheal intubation (ETT) and/or absence of escharotomy procedure for eschar and/or fasciotomy for limb compartment and/or absence of urine output monitoring in more than 20% TBSA was taken as mismanagement.
- Transfer was considered unsafe if ambulance was not used and information provided on referral form was incomplete.
- Patients fulfilling two or more of the following criteria were considered in Sepsis; heart rate >100, respiratory rate > 20 breaths/min, temperature >104.4°F and TLC >12000/mm3.
- Outcome was either survival or death. Frequency of mortality was calculated and initial intravenous fluid resuscitation was compared with outcome and analyzed using Chi-Square chart.

Results:
- Total 114 pediatric patients were enrolled. Mean age was 3.9 ± 2.9 years.
- A total of 44 (38.6 %) patients were transferred from hospitals in Lahore while 70 (61.4 %) patients were referred from hospitals outside Lahore.
- TBSA calculated by receiving doctor (house officer or medical officer) had discrepancy in 103 (90.4 %) of cases. No intravenous fluid had been administered in a total of 86 patients (75.4%).
- Bladder catheterization was done in only 2 (1.8%) patients but 83 (72.8%) required it.
- 2(1.8%) patients needed ETT but no intubation was done.
- Fasciotomy was not performed in 12 (10.5%) patients.
- A total of 33 (28.9%) patients were septic at admission.
- Ambulance was used to transfer 56 (49.1%) patients and 58 (50.9%) patients used private transport.
- Mortality rate was 38.2%.
- Initial fluid resuscitation was compared with survival of patient using chi square test and there was statistically significant (p = 0.000) association between early fluid resuscitation and survival.

Conclusion:
Our study shows that initial Burn management, transfer system and referral system is full of deficiencies and there is an imperative need to establish these protocols.