# Clinical audit on management of post-burn sepsis in pediatric intensive care unit

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**The aim of this study**
Is to assess how much the adopted protocol of management of post. burn sepsis in pediatrics is applied in intensive care unit in AUCH and to detect outcomes of these admitted cases.
**Objectives**
To review the specific infections common in pediatric burns, including their categorization, diagnosis, and treatment.
**Background**
Burn injury in children continues to be a major epidemiologic problem around the globe. Nearly a fourth of all burn injuries occur in children under the age of 16, the majority are under the age of five (1) . Children account for almost half of the population with severe burn injury and children below five years of age account for 50–80% of all childhood burns . Most childhood burns occur in the home; scalds are the most common burn type (accounting for 60–70% of all hospitalized burn patients, followed by flame and contact burns (2). .Burn sepsis is defined as life-threatening organ dysfunction due to a dysregulated host response to infection. (3).
**Methods**
The target population were all pediatrics patient who referred to PICU in AUCH after 24 hours post burn for management of septic shock along the peroid of one year from August 2015 to July 2016. Data is collected by reviewing medical records of burned patients admitted to PICU during the study duration.
**Result**
The study included 50 cases with post burn sepsis diagnosed according to criteria in the recommended guideline. Their ages ranged from 1-18 years, 30 cases were males and 20 cases were females. Scald burn represented 76% of the studied cases.
**Conclusion**
Among hospitalized pediatric burn patients , the majority were below 6 years and commonest cause of burn was scald.. Mortality was 44% among the studied cases .Sepsis is common in the pediatric burn patient and can markedly increase morbidity and mortality.

**Keywords:**
burn, septic shock, guidelines for post-burn sepsis, outcome

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## Introduction

Burn injury in children continues to be a major epidemiologic problem around the globe. Nearly a fourth of all burn injuries occur in children under the age of 16 years, and the majority are under the age of 5 years [1]. Children account for almost half of the population with severe burn injury, and children below 5 years of age account for 50–80% of all childhood burns. Burns are the 11th most common cause of death in children aged 1–9 years and the fifth most common cause of nonfatal childhood injuries. Most childhood burns occur at home. Scalds are the most common burn type (accounting for 60–70% of all hospitalized burn patients), followed by flame and contact burns [2]. Burn sepsis is defined as a life-threatening organ dysfunction owing to a dysregulated host response to infection [3].

Clinical diagnosis of sepsis is made by meeting at least three of the following criteria: (a) burn wound infection (>105 organisms/g tissue) with histologic or clinical evidence of invasion; (b) thrombocytopenia (<50 000) or falling rapidly; (c) leukocytosis or leukopenia (>20 000 or <3000); (d) unexplained hypoxia, acidosis, or hyperglycemia/hypoglycemia; (e) prolonged paralytic ileus; (f) hyperthermia/hypothermia (>39°C or <36.5°C), tachypnea, and tachycardia; (g) positive blood cultures; (h) documented catheter or pulmonary infection; (i) altered mental status; and (j) progressive renal failure or pulmonary dysfunction.

Local evidence of invasive wound infection includes the following: black or brown patches of wound discoloration, rapid eschar separation, conversion

of wounds to full thickness; spreading periwound erythema; punctuate hemorrhagic subeschar lesions; and violaceous or black lesions in unburned tissue (ecthyma gangrenosum) [4]. Despite medical advancements, burn sepsis accounts for 50–60% of burn injury-relateddeaths.

### Objectives

This clinical audit aims to evaluate the degree of commitment of physician in pediatric intensive care unit (PICU) for management of post-burn sepsis in Assiut University Children Hospital according to the guidelines recommended in the unit (Australian and New Zealand guidelines for management of burn in pediatrics).

The aim of this study is to assess how far the adopted protocol of management of post-burn sepsis in pediatrics is applied in intensive care unit in AUCH and to detect outcomes of these admitted cases.

## Patients and methods

Ethical approved by ethical committee, Faculty of Medicine, Assiut University. It is retrospective study data collected from medical records of patients.

### Study site

The study was conducted at PICU in AUCH.

### Type of the study

This was a retrospective clinical audit.

### Study population

All patients with post-burn septic shock or sepsis who referred to PICU in AUCH after 24 h following burn for management of septic shock in 1 year from August 2015 to July 2016 were included. Data were collected by reviewing medical records of burnt patients admitted to PICU during the study duration. The data were collected and recorded for each patient

| | Yes | No | Others |
|---|---|---|---|
| Cause of burn | | | |
| Fire | | | |
| Scalds | | | |
| Electrical | | | |
| Inhalational | | | |
| Chemical | | | |
| Irradiation | | | |
| History | | | |
| Possibility of being medicolegal case | | | |
| Allergies | | | |
| Medications | | | |
| Past medical history | | | |
| Last meal | | | |
| History of tetanus prophylaxis | | | |
| Events and environment of burn | | | |
| Physical examination and evaluation of burn | | | |
| Depth of burn | | | |
| Percentage of burn | | | |
| Site of burn | | | |
| Monitoring in ICU | | | |
| Vital sign | | | |
| Heart rate | | | |
| Respiratory rate | | | |
| Temperature | | | |
| Blood pressure | | | |
| CVP | | | |
| Urine output | | | |
| Conscious level | | | |
| Investigations | | | |
| CBC | | | |
| Blood gases and electrolyte | | | |
| Random blood glucose | | | |
| Grouping ABO and Rh | | | |
| Coagulation profile | | | |
| Renal function | | | |
| Liver function | | | |
| Chest radiography | | | |
| Urine analysis and culture | | | |
| Blood culture | | | |
| Wound swab | | | |
| Wound punch biopsy | | | |
| Sputum culture and bronchial lavage | | | |
| Stabilization of the patient | | | |
| Airway | | | |
| $O_2$ inhalation | | | |
| Fluid resuscitation | | | |
| Monitoring of vital signs | | | |
| Medications | | | |
| $H_2$ receptor antagonist | | | |
| Analgesics | | | |
| Opioid | | | |
| Paracetamol | | | |
| NSAID | | | |
| Vasopressor | | | |
| Antibiotic | | | |
| Intravenous immunoglobulin | | | |
| Fresh frozen plasma | | | |
| Care of wound | | | |
| Clean wound with saline/Ringer lactate | | | |
| Debride blisters and nonviable tissues | | | |
| Topical antimicrobial agents | | | |
| MEBO (sesame oil and bees wax) | | | |
| Betadine ointment | | | |
| Garamycin/amikacin | | | |
| Silver sulfadiazine | | | |
| Mafenide acetate | | | |
| Silver nitrate | | | |
| Bacitracin | | | |

*Contd...*

*Contd...*

| | Yes | No | Others |
|---|---|---|---|
| Bactroban | | | |
| Mycostatin ointment | | | |
| Nasogastric tube insertion | | | |
| Nutrition (first 24-48 h) | | | |
| Urinary catheterization | | | |
| Infection controls items | | | |
| Swab from nose | | | |
| Swab from groin | | | |
| Hand washing | | | |
| Wear gown, gloves, and masks | | | |
| Limit the number of staff and visitors entering the room | | | |

in a master sheet for management of post-burn sepsis in pediatrics according to the included chick list. These items include the following:

(1) History: including personal history, history of possibility of being medicolegal case, allergy, medications, past medical history, last meal, histroy of tetanus prophylaxis, and events and environment of burn.
(2) Full examination, monitoring of vital signs (such as heart rate, respiratory rate, temperature, and blood pressure), conscious level, pulse oximetry, and central venous pressure (CVP) record.
(3) All investigations recommended by the adopted guideline (Australian and New Zealand guidelines for management of pediatric burn in 2010), including complete blood count (CBC), electrolytes, arterial blood gases, random blood glucose, grouping ABO and Rh, coagulation profile, liver function, renal function, blood culture, urine analysis, urine culture, chest radiography, wound swab, wound biopsy, sputum culture and bronchial lavage.
(4) Drugs used for treatment such as $H_2$ receptor antagonist, analgesics, antibiotics and vasopressor, intravenous immunoglobulin, fresh frozen plasma, and salt-free albumin.

Data collection was done by reviewing the medical records of cases with burn for follow-up.

Checklist of post-burn sepsis management

Name:……
Age:…… Sex:……
Diagnosis:……
Date of burn:…… Date of hospital admission:……

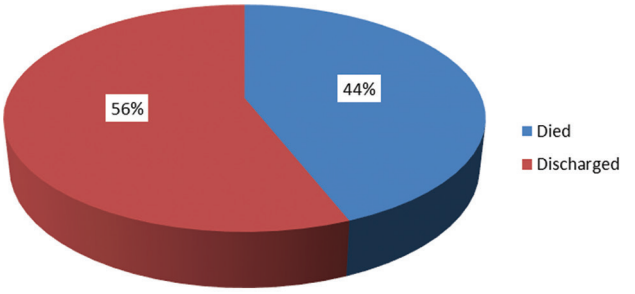
## Results

Table 1 shows the demographic data of the studied cases. It was noticed that 64% of the cases were in age group 1–3 years. Male patient represented 60% of all cases. It was noticed that 80% of all studied cases were from Assiut Governorate.

**Table 1 Demographic data of the studied cases**

| | Number of cases (*n*=50) [*n* (%)] |
|---|---|
| Age (years) | |
| Range | 1-11 |
| Mean±SD | 3.318±2.16 |
| 1 to ≤3 | 32 (64) |
| >3 to ≤6 | 14 (28) |
| >6-11 | 4 (8) |
| Sex | |
| Male | 30 (60) |
| Female | 20 (40) |
| Residence | |
| Patient from Assiut | 40 (80) |
| Patient outside Assiut | 10 (20) |

**Figure 1**




Distribution of frequency of the depth of burn among studied cases.

Table 2 shows the types of burn in the studied cases. It was noticed that scald burn was the commonest type of burn documented among the studied cases (76%), whereas only one case was admitted owing to chemical burn.

Table 3 shows that history of tetanus prophylaxis, history of last meal, and possibility of being a medicolegal case were neither done nor recorded. History of medications and history of past medical disease were done in all cases.

Table 4 shows the evaluation of burn in the studied cases. It was noticed that events of burn, date of burn, and date of hospital admission after burn were done in all cases (100%).

Fig. 1 shows the distribution of frequency of the depth of burn among studied cases. It was noticed that 42% of all included cases had second degree burn, whereas 6% of cases showed no external manifestation of burn.

Table 5 shows that all vital signs were done and fully recorded in all cases (100%). Conscious level was done and recorded in all cases. Pulse oximetry was used in all

**Table 2 Types of burn in the studied cases**

| Diagnosis | Number of cases (*n*=50) [*n* (%)] |
|---|---|
| Chemical burn | 1 (2) |
| Electrical burn | 2 (4) |
| Fire burn | 6 (12) |
| Inhalational burn | 3 (6) |
| Scald burn | 38 (76) |

**Table 3 Audit on history of the studied cases**

| | Done | | Recorded | |
|---|---|---|---|---|
| | Yes | No | Yes | No |
| Possibility of being a medicolegal case | 0 | 50 | 0 | 50 |
| History of allergy | 49 | 1 | 44 | 6 |
| History of previous medication | 50 | 0 | 48 | 2 |
| History of past medical disease | 50 | 0 | 50 | 0 |
| Timing of last meal | 0 | 50 | 0 | 50 |
| History of tetanus prophylaxis | 0 | 50 | 0 | 50 |

**Table 4 Audit on evaluation of burn in the studied cases**

| | Done | | Recorded | |
|---|---|---|---|---|
| | Yes | No | Yes | No |
| Events of burn | 50 | 0 | 50 | 0 |
| Duration of onset (date of burn) | 50 | 0 | 40 | 10 |
| Date of hospital admission after burn | 50 | 0 | 50 | 0 |
| Range (days) | | | 1-20 | |
| Mean±SD (days) | | | 6.2±5.9 | |
| Depth of burn | 47 | 3 | 47 | 3 |
| Percentage of burn (TBSA%) | 47 | 3 | 47 | 3 |
| Range | | | 7-60% | |
| Mean±SD | | | 29.9±13.7 | |

TBSA, total body surface area.

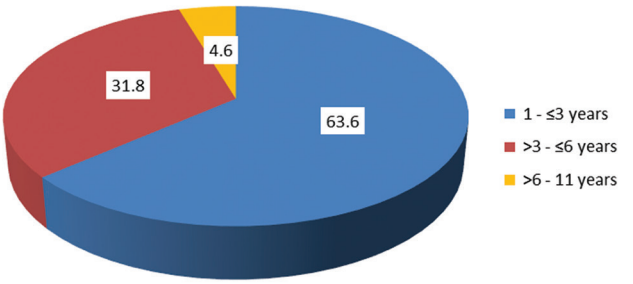
cases, but recording of hypoxic cases was done in only 23 cases. Patients in the age group 1–3 years exhibited the highest percentage frequency of each of tachycardia, tachypnea, and hypotension in comparison with their counterparts in other age groups.

Table 6 shows that CBC was done in 47 (94%) cases, but not done in three (6%) cases. Of the three cases, one was a case of fire burn (60% of total body surface area), had bradycardia, and was shocked and hypoxic. This case died within one hour after admission. The other two cases were scald burn (30–40% of total body surface area), were shocked, and died within first 24 h after admission. CVP was not done for all cases. It was noticed that only one case was exposed to wound punch biopsy, whereas urine output record was done for 70% of cases.

Table 7 shows that airway management was needed for 10% of burn cases, whereas 40 cases were in need for $O_2$ inhalation. Fluid resuscitation was completed for 66% of cases, whereas follow-up and recording of vital signs was done for all included patients.

Table 8 shows drugs used for treatment of the studied cases. It was noticed that opioid was not used in all

**Figure 2**




Number of deaths according to the age group.

cases, whereas paracetamol was used in 40 (80%) cases as analgesic. Antibiotics were used according to guidelines in 28 (56%) cases, whereas antibiotics were changed according to blood culture among 15 (30%) cases. Intravenous immunoglobulin was needed in eight (16%) cases.

Table 9 shows that wound cleaning with saline or Ringer lactate and topical antimicrobial ointment was instituted in 45 (90%) cases. The topical antimicrobial agents used were Betadine ointment (povidone iodine) in 45 (90%) cases, MEBO (sesame oil and bees wax) in 37 (74%) cases, amikacin or garamycin in 20 (40%) cases, and mycostatin ointment in one (2%) case. Other topical antimicrobial such as silver sulfadiazine, mafenide acetate, silver nitrate, bacitracin, and bactroban were not used in all cases, as it is not recommended by the plastic surgery team in Assiut University Hospital.

Table 10 shows that swabs from nose and groin were not done for all cases. Regarding the commitment of the health care givers with the rules of wearing gloves and using hand rub, it was found that 80% of them followed the infection control rules. There was no control on the time of visiting the patients or the number of visitors.

Table 11 shows outcome of the studied cases. It was noticed that death rate was 44%. Of the nonsurvivors, 27% died within first 48 h from hospital admission. It was found that the length of hospital stay was shorter among the nonsurvivors in comparison with the survivors.

Fig. 2 shows that the most distribution of deaths was in the age group 1–3 years (63.6%).

Table 12 shows the types of complication in the studied cases. It was noticed that metabolic acidosis was the commonest complication detected among these cases followed by wound infection, urinary tract infection, and renal impairment.

**Table 5 Clinical sign of cases with burn regarding its documentation medical records**

| | Done | | Recorded | |
|---|---|---|---|---|
| | Yes | No | Yes | No |
| Heart rate | 50 | 0 | 50 | 0 |
| According to the age group [*n* (%)], (mean±SD) | | | | |
| 1-3 years (32) | | | | |
| Normal for age | 15 (47), 140±9.1 beat/min | | | |
| Tachycardia | 17 (53), 185±15 beat/min | | | |
| Bradycardia | 0 (0) | | | |
| 3-6 years (14) | | | | |
| Normal | 9 (64.3), 125±6.5 beat/min | | | |
| Tachycardia | 5 (35.7), 158±7.5 beat/min | | | |
| Bradycardia | 0 (0) | | | |
| 6-11 years (4) | | | | |
| Normal | 3 (75), 110±10 beat/min | | | |
| Tachycardia | 0 (0) | | | |
| Bradycardia | 1 (25), 50±0 | | | |
| Respiratory rate | 50 | 0 | 50 | 0 |
| According to the age group [*n* (%)], (mean±SD) | | | | |
| 1-3 years (32) | | | | |
| Normal | 7 (22), 32.6±4.3 cycle/min | | | |
| Tachypnea | 25 (78), 50.4±5.8 cycle/min | | | |
| Bradypnea | 0 (0) | | | |
| 3-6 years (14) | | | | |
| Normal | 5 (35.7), 28.5±3.9 cycle/min | | | |
| Tachypnea | 9 (64.3), 48.2±5.2 cycle/min | | | |
| Bradypnea | 0 (0) | | | |
| 6-11 years (4) | | | | |
| Normal | 2 (50), 25.7±2 cycle/min | | | |
| Tachypnea | 1 (25), 35 cycle/min | | | |
| Bradypnea | 1 (25), 12±0 cycle/min | | | |
| Temperature [*n* (%)], (mean±SD) | 50 | 0 | 50 | 0 |
| Normal | 23 (46), 37.1±0.3 | | | |
| Hyperthermia | 19 (38), 39.3±0.5 | | | |
| Hypothermia | 8 (16), 35.6±0.5 | | | |
| Blood pressure | 50 | 0 | 50 | 0 |
| According to the age group [*n* (%)] | | | | |
| 1-3 years | | | | |
| Normal | 17 (53) | | | |
| Low | 15 (47) | | | |
| 3-6 years | | | | |
| Normal | 8 (57) | | | |
| Low | 6 (43) | | | |
| 6-11 years | | | | |
| Normal | 3 (75) | | | |
| Low | 1 (25) | | | |
| Conscious level | 50 | 0 | 50 | 0 |
| Pulse oximetry | 50 | 0 | 23 | 27 |
| Hypoxic ($O_2$ saturation <90%) [*n* (%)] | 23 (46) | | | |
| Not hypoxic [*n* (%)] | 27 (54) | | | |

**Table 6 Audit on investigations done on admission for the studied cases**

| | Done | | Recorded | |
|---|---|---|---|---|
| | Yes | No | Yes | No |
| CBC | 47 | 3 | 47 | 3 |
| pH and electrolyte | 47 | 3 | 43 | 7 |
| Random blood glucose | 49 | 1 | 45 | 5 |
| Grouping ABO and Rh | 49 | 1 | 49 | 1 |
| Coagulation profile | 45 | 5 | 45 | 5 |
| Renal function | 44 | 6 | 44 | 6 |
| Liver function | 28 | 22 | 28 | 22 |
| Chest radiography | 39 | 11 | 15 | 35 |
| Urine analysis | 40 | 10 | 40 | 10 |
| Urine culture | 15 | 35 | 15 | 35 |
| Blood culture | 37 | 13 | 37 | 13 |
| Wound swab | 36 | 14 | 36 | 14 |
| Wound punch biopsy | 1 | 49 | 1 | 49 |
| Sputum culture and lavage | 0 | 50 | 0 | 50 |
| CVP record | 0 | 50 | 0 | 50 |
| Urine output record | 35 | 15 | 20 | 30 |

CBC, complete blood count; CVP, central venous pressure.

## Discussion

Our study included 50 cases that were admitted in pediatric ICU within 1 year from August 2015 to July 2016. The results showed that 30 (60%) cases were male, and 20 (40%) cases were female. Their ages ranged from 1 to 11 years. The majority of cases belonged to age group 1–3 years, which included 32 (64%) cases.

Kumar *et al.* [5] showed that the age of incidence of burns is 76.1% in children below 5 years of age and 23.9% in children in the age group of 6–10 years.

The study showed that scald burn was the most common cause of burn (76%) followed by flame (12%). Scald was predominant among the 1–6 years age group and in both males and females.

Spinks *et al.* [6] showed that scald injury was found to be a major cause for contributing toward thermal injuries, accounting for 50% of hospital admissions, and mainly owing to hot liquids, which occur mainly in children from birth to 6 years of age.

The study showed the site of burn was recorded in 47 (94%) cases, which showed that limbs were the most common burn sites, accounting for 78% of all admissions (lower limbs more than upper limbs). The second most common site was the head, face, and neck region (24%), followed by the trunk (17%). These lesions mainly being associated with burns of the upper thorax.

Zhou *et al.* [7] showed that limbs were the most common burn sites, accounting for 72.1% of all admissions. The second most common was the head, face, and neck region (47.7%), followed by the trunk (43.9%).

This study showed that drugs used for treatment of the studied cases showed that opioid was not used in all cases, whereas paracetamol used in 40 (80%) cases as analgesic followed by NSAID then midazolam.

**Table 7 Audit on measures for stabilization of the patient**

| | Done | | Recorded | |
|---|---|---|---|---|
| | Yes | No | Yes | No |
| Airway management | 5 | 45 | 5 | 45 |
| $O_2$ inhalation | 40 | 10 | 40 | 10 |
| Fluid resuscitation on admission | 33 | 17 | 33 | 17 |
| Monitoring of vital signs | 50 | 0 | 50 | 0 |

**Table 8 Drugs used for treatment of the studied cases**

| | Done | | Recorded | |
|---|---|---|---|---|
| | Yes | No | Yes | No |
| $H_2$ receptor antagonist | 46 | 4 | 46 | 4 |
| Analgesics | | | | |
| Opioid | 0 | 50 | 0 | 50 |
| Paracetamol | 40 | 10 | 40 | 10 |
| NSAID | 29 | 21 | 29 | 21 |
| Midazolam | 12 | 38 | 12 | 38 |
| Vasopressor | 33 | 17 | 33 | 17 |
| Antibiotic [*n* (%)] | 48 | 2 | 48 | 2 |
| Antibiotics used according to guidelines | | 28 (56) | | |
| Antibiotics were changed according to blood culture | | 15 (30) | | |
| Intravenous immunoglobulin | 8 | 42 | 8 | 42 |
| Fresh frozen plasma | 34 | 16 | 34 | 16 |

**Table 9 Audit on care of wound in the studied cases**

| | Done | | Recorded | |
|---|---|---|---|---|
| | Yes | No | Yes | No |
| Clean wound with saline/Ringer's lactate | 45 | 5 | 45 | 5 |
| Debride blisters and nonviable tissues | 43 | 7 | 43 | 7 |
| Topical antimicrobial agents | 45 | 5 | 45 | 5 |

Berde and Sethna [8] described the use of paracetamol in the treatment of background pain in children injury and found the use in 50% of these children. Paracetamol is an analgesic used to treat mild to moderate pain. In combination with an opioid, paracetamol produces a greater analgesic effect than higher doses of the opioid alone.

This study showed that wound cleaning with saline or Ringer lactate and topical antimicrobial was done for 45 (90%) cases. The topical antimicrobial agents used were betadine ointment (povidone iodine) in 45 (90%) cases, MEBO (sesame oil and bees wax) in 37 (74%) cases, amikacin or garamycin in 20 (40%) cases, and mycostatin ointment in one (2%) case. Early depridement occurred in 43 (86%) cases.

Bangroo *et al.* [9] stated that honey was used as a local dressing for the wound, which is a recent study having indicated that honey is helpful in controlling wound infection.

Our study shows the outcome of the studied cases, and it was noticed that 44% of cases died and 56% of cases improved. Of the nonsurvivors, 54.5% died within first 48 h from hospital admission, and 45.5% died within 3–20 days.

**Table 10 Infection control measures for the studied cases**

| | Done | |
|---|---|---|
| | Yes | No |
| Swab from nose | 0 | 50 |
| Swab from groin | 0 | 50 |
| Hand rub | 40 | 10 |
| Wear gown | 40 | 10 |
| Wear gloves | 45 | 5 |
| Wear masks | 5 | 45 |
| Limited number of staff and visitors entering the room | 0 | 50 |

**Table 11 Outcome of the studied cases**

| | Done | | Recorded | |
|---|---|---|---|---|
| | Yes | No | Yes | No |
| Outcome | | | | |
| Nonsurvivors | 22 | 28 | 22 | 28 |
| Within first 48 h [*n* (%)] | | 12 (54.5) | | |
| After first 48 h [*n* (%)] | | 10 (45.5) | | |
| Length of hospital stay of nonsurvivors who died after first 48 h | | | | |
| Range | | 3-20 days | | |
| Mean±SD | | 9.4±6.6 | | |
| Survivors | 28 | 22 | 28 | 22 |
| Length of hospital stay of survivors | | | | |
| Range | | 5-120 days | | |
| Mean±SD | | 29.5±31.9 | | |

**Table 12 Types of complications in the studied cases**

| Types of complications | *n* (%) |
|---|---|
| Metabolic acidosis | 33 (66) |
| Wound infection | 30 (60) |
| Urinary tract infection | 15 (30) |
| Renal impairment | 10 (20) |
| Burn shock | 8 (16) |
| Pulmonary infection | 7 (14) |
| Gastroenteritis | 5 (10) |
| Fungal infection | 4 (8) |
| Arrhythmia | 4 (8) |

The age group 1–3 years showed a death rate of 63.6%, the age group 3–6 years had seven (32%) deaths, and among children aged 6–11 years, the death rate was 4.5%. A direct relation was found between percentage of body surface area and mortality among burn injured children. Increased number of deaths among children were found with increased percentage of body surface area burned more than 40%.

Jeschke *et al.* [10], conducted a study on morbidity and survival probability in burn patients in modern burn care units and showed that children with burn injury over 60% of total body surface area are at increased risk for morbidity and death.

Arifi *et al.* [11] reported that mortality rate was 35% of burned cases, 48% of cases survived, and 17% self-discharged. Overall, 40.4% died in first 24 h, 4.2% died within 24–48 h, 36% died in 2–15 days, and 19.2% died after 15 days. The 0–4-year group had a death rate of 49%.

This study showed types of complications in the studied cases. It was noticed that metabolic acidosis was the commonest complication detected among these cases () followed by wound infection (60%), urinary tract infection (30%), renal impairment (20%), and burn shock (16%).

Reig *et al*. [12] showed that early death (<48 h) was mostly owing to burn shock or inhalation injury. Multiorgan failure was responsible for 25–65% of all burn deaths and sepsis for 2–14%.

## Conclusion

Among hospitalized pediatric burn patients, the majority were below 6 years and commonest cause of burn was scald burn. Most common site of burn was their own house. Mortality was 44% among the studied cases, and those aged less than 6 years exhibited the highest percentage frequency of deaths.

Commitment with the guidelines was defective in the history (as history of timing of last meal and tetanus prophylaxis), investigations and treatment of the post-burn sepsis, as it is partially followed by resident physician in PICU in AUCH.

## Recommendations

(1) Blood culture and sensitivity should be done in all cases with high susceptibility of burn sepsis. It should be done by well-experienced persons, and suitable maneuvers should be applied following the infection control guidelines.
(2) Fluid resuscitation should be modified every 6 h according to clinical response by monitoring vital sign, UOP, and CVP to avoid overhydration or underhydration.
(3) The hospital administration should ensure the availability of sedation and analgesics in severe cases of burn during dressing changes.
(4) Rules of infection control should be strictly applied such as sterile hand washing, limiting the number of visitors, and wearing gowns, gloves, and mask to decrease incidence of burn sepsis, as these items were badly done.
(5) Isolation of patients with extensive burn more than 15% or those with multiresistant organism is recommended.
(6) High index of early clinical diagnosis of burn sepsis and early treatment will improve outcome of sepsis and shorten the length of the hospital stay and reduce the cost.
(7) A national educational program to highlight the different indoor and outdoor hazards that can lead to burn injury in children should be adopted.

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Nil.

**Conflicts of interest**

There are no conflicts of interest.

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