Mortality and Causes of Death among Burn Patients at the Burn Unit of Cipto Mangunkusumo Hospital

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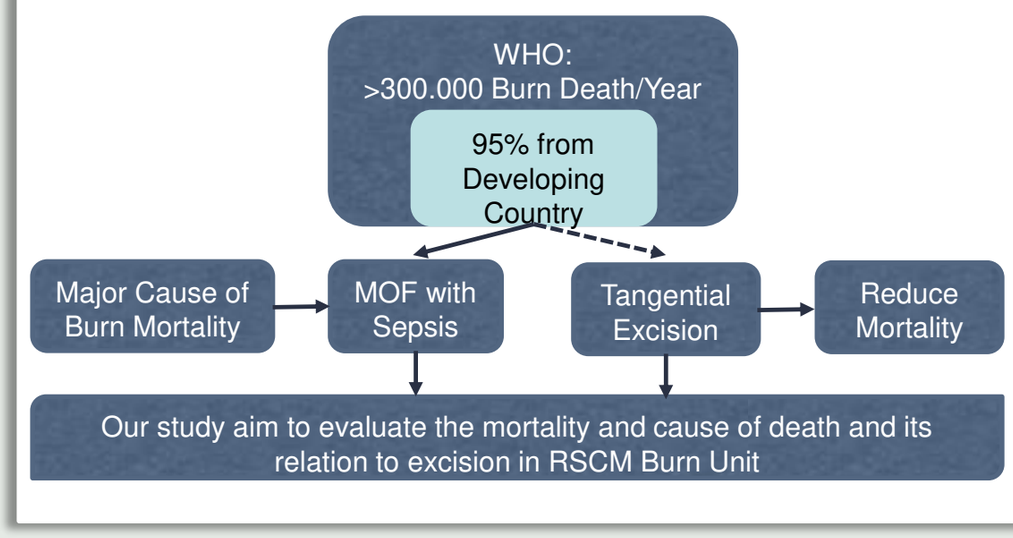
Introduction



Method

A retrospective analysis from the medical records of Cipto Mangunkusumo hospital burn unit between January 2013 - June 2017 (n=157).

We collect the demographic data of mortality, causes of death, and the patterns of bacterial isolates among deceased patients (only sepsis) in our unit.

Statistical analysis was performed using SPSS ver. 23.0. Mann-Whitney and Unpaired T test was used to analyze non parametric data. Fischer's Exact and Chi Square test was used for qualitative data. The data was considered statistically significant if p-value less than 0,05.

Results

Figure 1. Total of Patients Admitted and Died in RSCM Burn Unit 2013-2017

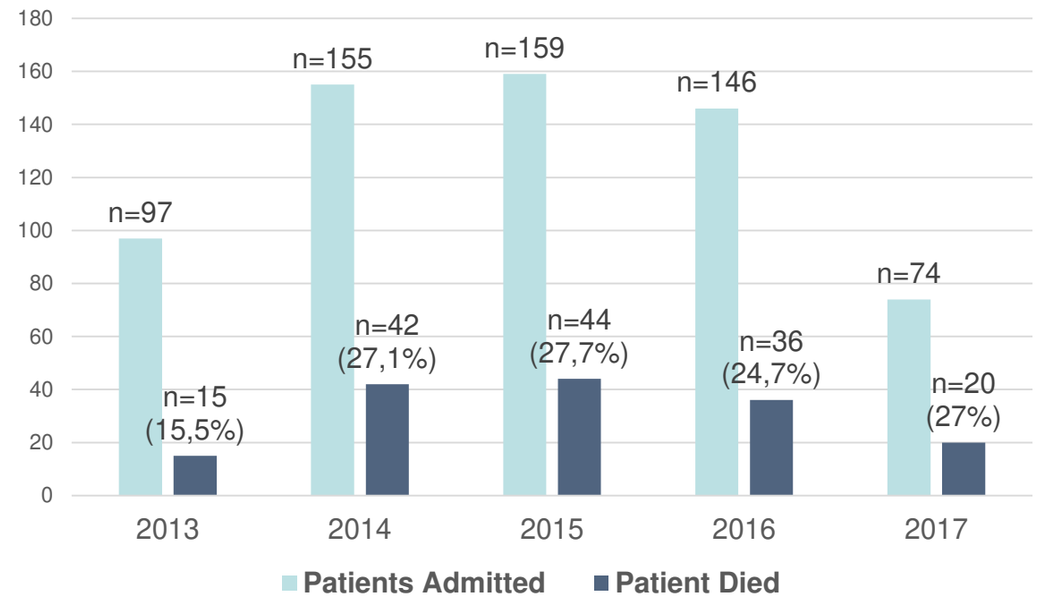


Table 1. Characteristics of Deceased Burn Patients in RSCM Burn Unit

Characteristics	Tangential Excision: Performed (n=89)	Tangential Excision: Not Performed (n=68)	p-Value
Age (years), mean (SD)	34,6 (17,1)	39,39 (18,6)	0,097
Gender, n (%)			0,502
Male	60 (67,4)	42 (61,8)	
Female	29 (32,6)	26 (38,2)	
Inhalation Injury, n (%)			0,871
Yes	37 (41,6)	30 (44,1)	
No	52 (58,4)	38 (55,9)	
Length of Stay (days), median (range)	11 (1-81)	6,5 (1-24)	<0.001*
TBSA, mean (SD)	54,1 (20,4)	59,4 (24,0)	0,133
Mechanism of Injury n (%)			
Flame	70 (78,7)	57 (83,8)	0,539
Blast/ Gas Injury	45 (64,3)	26 (45,6)	
Others	25 (35,7)	31 (54,4)	
Electrical	11 (12,4)	4 (5,9)	0,273
Chemical	3 (3,4)	2 (2,9)	1,000
Scald	5 (5,6)	5 (7,4)	0,502

Table 2. Causes of Death in RSCM Burn Unit

Cause of Death	Tangential Excision: Performed (n=89) n (%)	Tangential Excision: Not Performed (n=68) n (%)	p-Value
Sepsis	31 (34,8)	32 (47,1)	0,141
Multiple Organ Failure (MOF)	38 (42,7)	21 (30,9)	0,139
Acute Respiratory Distress Syndrome (ARDS)	15 (16,9)	13 (19,1)	0,834
Acute Kidney Injury (AKI)	3 (3,4)	1 (1,5)	0,634
Hypovolemic Shock	2 (2,2)	1 (1,5)	1,000

Table 3. Patterns of Bacterial Isolates among Deceased Sepsis Patients in RSCM Burn Unit

Organisms	Tangential Excision: Performed (n=26) n (%)	Tangential Excision: Not Performed (n=26) n (%)	p-Value
Klebsiella Pneumoniae	13 (50,0)	13 (50,0)	1,000
Pseudomonas Aeruginosa	15 (57,7)	9 (34,6)	0,164
Acinetobacter Baumannii	10 (38,5)	10 (38,5)	1,000
Enterobacter Aerogenes	5 (19,2)	8 (30,8)	0,523
Escherichia Coli	0 (0)	5 (20)	0,023*
Staphylococcus Epidermidis	0 (0)	3 (11,5)	0,235
Candida sp.	3 (11,5)	2 (7,7)	1,000
Streptococcus sp.	0 (0)	4 (15,4)	0,110
Proteus Mirabilis	1 (3,8)	1 (3,8)	1,000
Enterococcus Faecalis	0 (0)	1 (3,8)	1,000
Enterobacter cloacae	2 (7,7)	1 (3,8)	1,000
Staphylococcus Saprophyticus	1 (3,8)	1 (3,8)	1,000

Conclusion

Primary features of burn deceased patients in our setting are commonly found among males within working age with the major cause of burn are flames particularly due to blast injury and sepsis was found as the major cause of death. These findings are concurrent with the available literature related to mortality in burns.

However, despite its popular belief, our data suggests tangential excision procedure does not significantly affect the pattern of mortality and cause of death among burn patients in our setting. Length of hospitalization is shown to be longer among eighty-nine patients who underwent excision before death. Positive bacterial culture is also shown to have no significant differences between excision and non-excision group diagnosed with sepsis.

One of the factors that may contribute to these findings are the timing of excision which mostly delay due to late admission in our burn centre. Furthermore, most admitted patients in our setting have greater than 50% TBSA and almost 50% of deceased patients have inhalation injury.

References

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