

Paediatric Amputation Injuries Aetiology and Statistical Analysis

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This retrospective study reviews the medical record of 100 patients who had had amputations in the department of Paediatric Surgery, Mayo Hospital, Lahore during a period of three years (1994-1997). Major causes of amputations were electric burns, road traffic accidents and machine injuries. The aim of study is to provide a profile of amputation injuries in children.

Key Words: Paediatric Amputation, Paediatric Trauma.

Trauma is a major cause of morbidity and mortality in children and young adults¹. Acute traumatic events are the most common cause of death in children and rank second to acute infections as the leading cause of morbidity².

An estimated 10,000 children are permanently disabled and two million children are temporarily incapacitated by trauma each year³. One third of children who sustain polytrauma have an associated musculoskeletal injury. Musculoskeletal injuries are the second most frequent cause of permanent paediatric disability, after injuries to central nervous system. Epidemiological research on amputees is being continued extensively world-wide but there are different epidemiological reports from country to country.

Materials and Methods

All patients 12 years old or less admitted to department of Paediatric Surgery with amputation injuries over three years period (1994 to 1997) were included in the study (100 patients). Aetiology, anatomical location, number of surgeries and length of hospital stay were studied.

Results

A total of 100 patients of different ages were studied as shown in Table-1. Out of these 80 were males and 20 were females as shown in Table-2.

Table - 1 Age Distribution

Sr. No.	Age (Years)	No. of Patients
1	0-5	25
2	6-8	30
3	9-12	45

Table - 2 Sex Distribution

Sr. No.	Sex	No. of Patients
1	Male	80
2	Female	20

Sixty five out of total 100 patients had amputation of

upper extremity, 25 had lower extremity amputation and 10 cases were those having multiple amputations involving both extremities. Seventy patients had involvement of right extremity amputation, thirty patients had left extremity amputation. Different levels of amputations according to number of patients have been shown in Table-3.

Table - 3 Level of Amputation

Sr. No.	Level of Amputation	No. of Patients
1	Above knee	10
2	Below knee	15
3	Below Ankle	11
4	Above Elbow	9
5	Below Elbow	
	A Above Wrist	9
	B Thumb	10
	C Fingers	36

Average length of hospital stay was 15 days (ranging from 2 days to 1 month). Various causes of amputation of different types have been shown in Table-4.

Table - 4 Causes of Amputation

Sr. No.	Cause of Injury	No. of Patients
1	Electrical burn	30
2	RTA*	25
3	Machine injuries	23
4	Blast injury	08
5	Infections	04
6	Vascular injury	03
7	Tight splintage	03
8	Tumours	02
9	Medical Diseases	02

*Road traffic accidents

Medical diseases which lead to amputation were i) hereditary sensory neuropathy, ii) Ascending gangrene of lower limbs.

Discussion

Kim et al⁴ have reported 4258 amputees during a period of 24 years. Trautwein et al⁵ have reported a series of 74 patients of amputees over a period of 10 years. Yakuba et al⁶ have reported a series of 118 limb amputations over a period of 10 years. Our study includes 100 patients of amputees over a period of 3 years as compared to other series.

According to Kim et al series⁴, trauma was the most common cause of amputation followed by peripheral vascular disease. Yakuba et al⁶ label trauma and gangrene responsible for amputation followed by post fracture splintage.

In our series, electric burn is the most common cause of amputation followed by road traffic accidents (RTA). These electric burn injuries are due to a) Patient falling from a roof on high tension wires which are passing very close to the house, b) Kite flying with a metallic wire and resulting in short circuiting has increased the electric burn injuries during the recent past.

In two cases post fracture splintage by pehalwans lead to amputation.

Kim et al⁴ report lower limb amputation more common than upper limb amputation. Trautwein et al⁵ report upper extremity amputations more than lower extremity. In our series, upper extremity amputations (65%) are much higher than lower extremity (25%).

Kim et al⁴ reports incidence of multiple amputations 9.3% out of all amputations. In our series incidence of multiple amputations is 10%. Average length of hospital stay is 15 days with an average of 2 surgical procedures as compared to 11.3 days average length of hospital stay with 2.3 surgical procedures in Trautwein et al⁵ series.

Yakuba et al⁶ also report that 22% of the amputation injuries are caused by power lawnmowers. While in our series no amputation injury occurred due to power lawnmower. Instead of, in our series 30% amputation injuries are caused by electric burn.

Forty eight patients had had amputation of right upper extremity. Loss of dominant limb results in a drastic

change in the life style of the patient. This may stop the learning at school altogether. Loss of earning hand can lead to a change in the socioeconomic status of the whole family for the worse. Loss of proper training and guidance after amputation can convert a child into a beggar on the street.

Conclusions

Electric burn represents a serious hazard to children and should be addressed through parent education, and adoption of safety measures. Machine injuries leading to amputations can be prevented using safety measures, through parent education and avoidance of child labour.

Mismanagement of fractures by pehalwans should be discouraged.

Road traffic accident should be minimized through strict applications of highway safety rules. A nation-wide campaign should be launched in the print and visual media to enhance the public awareness regarding safe traveling.

Surgeon's responsibility does not end once the wound is healed but parents must be guided through the difficult period of rehabilitation and their returned to community.

References

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