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Crush injuries following lower limb amputations and their outcome

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I. Introduction :

Trauma is the leading cause of amputation accounting for more than 70% in India.[2] The common traumas reported were road traffic accidents, railway accidents, burns due to fire, electrocution and chemical injuries

According to WHO, India has the highest number of road accidents in the world with 16.8 fatal injuries per 1,00,000 population and 38.9 non-fatal injuries per 1,00,000 population as 2 per the data from 2006.From these data, it can be postulated that trauma would be a significant cause of lower limb amputations.[3] Various studies conducted in India from Tamil Nadu, Andhra Pradesh, Punjab, West Bengal were consistent with trauma undoubtedly being the primary cause of amputation. [2].

Following trauma, peripheral vascular diseases contribute around 27.7% for amputations due to the increase in aging population.

Amputation is a life-changing surgery. Amputation can be described as the removal of an extremity by surgery or trauma. If amputation is taken as a surgical measure, it is used to control pain or disease process in the affected limb. Amputation is one of the most common acquired disabilities. [1].

AIM :

The purpose of this study is to analyse the functional outcome in terms of physical, mental health, mobility, prosthesis use, of patients who sustained lower limb amputation following trauma. It also evaluates the effect of rehabilitation in improving the functional well-being of patients with amputations.

MATERIALS AND METHODS:

Type of study : Prospective study
Sample size : 47 Period of study : 2019-2021

INCLUSION CRITERIA:

1. Crush injury
2. Traumatic amputations

EXCLUSION CRITERIA:

1. Distal to ankle joint / Hip disarticulation
2. Age < 10 years 3. Other indications of amputations like peripheral vascular disease, Diabetes Mellitus, wet Gangrene

II. Results:

Age Distribution :

Age (IN YEARS)	No. of patients	Percentage
Less than 30	14	30%
31-45	11	23.50%
46-60	14	30%
More than 60	8	16.50%

In our study most common age group is <30 years and 46-60 years. The mean age in our study is 44.08 years and the range is 13-83 years.

Mode of Injury

Mode of injury	No of patients	Percentage
RTA	39	83%
TTA	8	17%

Road traffic accidents accounted for amputation in 39 patients (83%) followed by train traffic accidents in 8 (17%) patients

Type of Amputation

Type of Amputation	No of patients	Percentage
Below Knee	21	45%
Above Knee	26	55%

In our study, 26 (55%) patients were above knee amputees and 21(45%) were below knee amputees

Stump pain

Stump Pain	No of patients	Percentage
Present	7	15%
Absent	38	85%

Out of 45 patients, 7 (15%) patients had stump pain.

Phantom Pain

Phantom Pain	No of patients	Percentage
Present	19	42%
Absent	26	58%

Out of 47 patients, 19(42%) patients had phantom pain.

Prosthesis Use for more than 4 hours per day based on gait training

Prosthesis use with gait training	No of patients	Percentage
Yes	22	70.96%
No	9	29.03%

Out of 31 patients, 22 (70.96%)
patients with gait training exercises were using the prosthesis for more than 4 hours per day.

Stump length

Type of amputation	Stump length
Mean Below Knee	20.35
Above Knee	24.2

The mean stump length in 25 above knee amputees is 24.2 cm and 20 below knee amputees is 20.35 cm

III. Conclusion

From our study :
we conclude that below knee amputees have better quality of life than above knee amputees.
The successful rehabilitation of an amputee on a prosthesis depends on stump quality and except for mechanical advantage of long lever arm, maintaining ideal stump length is not much important in rehabilitation of an amputee.
Developing awareness programme among the amputees, regarding rehabilitation services like pre-prosthetic gait training exercises, early prosthetic fitting helps to improve the prosthesis use, quality of health and vocational prospects.
Medical rehabilitation alongwith psychosocial rehabilitation by an interdisciplinary, well co-ordinated team of physiotheraist, occupational therapist, nurse, psychologist and social worker helps to attain the ultimate goal of successful re-integration of an amputee to the level of pre-amputation daily living.
Newer developments in prosthetic interface and stump pain management significantly improves quality of life.