

Factors Affecting Amputation in Patient with Diabetic Foot Ulcer at Sardjito General Hospital

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Abstract

Background: Diabetic foot ulcer (DFU) can cause significant morbidity and need for surgical intervention due to the high prevalence of diabetic foot problems in general population. The incidence of DFU is 15% of all diabetic patients. Eighty-two percent (82 %) of DFU will lead to lower extremity amputation. Therefore, the factors that affecting the needs of distal limb amputation should be described for prevention and decrease the need of amputation and morbidity of the patients. Objective: The aim of this study is to determine factors affecting distal limb amputation in patient with DFU. Methods: The design of this study is retrospective cohort, using data of DFU patient treated surgically from January 2012 to September 2016. Socioeconomic factors, Blood profile, Diabetes Mellitus (DM) profile and Ankle Brachial Index (ABI) were collected. All the data were then analyzed using SPSS. Result: There were 119 patients were enrolled in this study. Thirty-nine patients (32.7%) had distal limb amputation. The amputation level was forefoot (34 patients, 87%), mid foot (2 patients, 5%), hind foot (2 patients, 5%) and Trans tibial (1 patient, 3%) amputation. This study showed that socioeconomics factors were not significantly correlated with distal limb amputations in patients with diabetic ulcer. The level of DLA was not affected by patient's blood profile, DM profile and ABI. Conclusion: Decision to perform surgical intervention can not only rely on the laboratory profile and socioeconomic factors of the patients. Clinical judgement of the doctor and the patients' general conditions should also be considered.

Introduction

Diabetic foot ulcer (DFU) can cause significant morbidity and need for surgical intervention due to the high prevalence of diabetic foot problems in general population. The world is facing a major epidemic of diabetes mellitus (DM). There are an estimated 171 million diabetic patients worldwide and this number is expected to double by the year 2030. All of these patients are at risk for developing a diabetic foot ulcer (DFU). A DFU is any full-thickness wound below the ankle in a diabetic patient, irrespective of duration.

Based on current studies, the annual population-based incidence is 1 to 4% with a prevalence of 4 to 10%, and the estimated lifetime risk is 25% [2]. According to a study published by the Eurodiale study group [3], approximately 58% of DFU patients will become clinically infected. Patients with DM frequently require minor or major amputations of the lower limbs (15 to 27%)

and in more than 50% of cases, infection is the preponderant factor the amputation rates differ widely across geographic regions within countries as well as between countries. The amputation rates range from 0.7 per 1000 in East Asian populations to 31.0 per 1000 in U.S Pima Indians. Even though the frequency of minor amputations is greater, most of the data on amputations involves major amputation. Therefore, the factors that affecting the needs of distal limb amputation should be described for prevention and decrease the need of amputation and morbidity of the patients. The aim of this study is to determine factors affecting distal limb amputation in patient with DFU.

Methods

The design of this study is retrospective cohort conducted in Sardjito General Hospital, Yogyakarta, Indonesia; the samples

Table1: Gender distribution of the sample

		Surgical Intervention				Total
		Debridement	Forefoot amputation	Midfoot amputation	Hindfoot amputation	
Gender	Male	42	11	1	0	54
	Female	37	23	3	1	64
Total		79	34	4	1	118

Table 2: Insurance distribution of the sample

		Surgical Intervention				Total
		Debridement	Forefoot amputation	Midfoot amputation	Hindfoot amputation	
Insurance	JKN PBI	23	6	1	0	30
	JKN Non PBI	38	23	2	1	64
	Umum	18	5	1	0	24
Total		79	34	4	1	118

Table 3: Education distribution of the sample

		Surgical Intervention				Total
		Debridement	Forefoot amputation	Midfoot amputation	Hindfoot amputation	
Education	SD SLTP	39	17	3	0	59
	SMU	40	17	1	1	59
Total		79	34	4	1	118

Table 4: Employment status distribution of the sample

		Surgical Intervention				Total
		Debridement	Forefoot amputation	Midfoot amputation	Hindfoot amputation	
Job	Unemployed	29	13	4	0	46
	Employed	50	21	0	1	72
Total		79	34	4	1	118

Table 5: Income rate distribution of the sample

		Surgical Intervention				Total
		Debridement	Forefoot amputation	Midfoot amputation	Hindfoot amputation	
Income	< 1.5 million	24	11	2	0	37
	> 1.5 million	55	22	2	1	80
Total		79	34	4	1	118

were taken on using data of DFU patient treated surgically from January 2012 to September 2016. After the subjects were well-informed and gave consent to be enrolled in this study, the data were obtained from the examination done by the researcher and further additional data were seen in medical records. The parameters comprised the several aspect of the patients. Socioeconomic factors, Blood profile, Diabetes Mellitus (DM) profile and Ankle Brachial Index (ABI) were collected. All the data were then analyzed using SPSS.

Results

There were 118 patients were enrolled in this study. Thirty-nine patients (32.7%) had distal limb amputation.

References

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The amputation level was forefoot (34 patients, 87%), mid foot (2 patients, 5%), hind foot (2 patients, 5%) and Trans tibial (1 patient, 3%) amputation. This study showed that socioeconomics factors did not significantly correlated with distal limb amputations in patients with diabetic ulcer. The level of DLA was not affected by patient's blood profile, DM profile and ABI. This study shows similar result to the previous study by Morris et.al [2].

Conclusion

Decision to perform surgical intervention can not only rely on the laboratory profile and socioeconomic factors of the patients. Clinical judgement of the doctor and the patients' general conditions should also be considered.

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