

Pattern of Diabetic Foot Disorder in King Khalid Hospital, Hail, Saudi Arabia (2013)

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Abstract: Diabetes is a chronic disease that can lead to complications one of them is diabetic foot. The aim of this study was to identify the prevalence of diabetic foot, associated diseases, pattern of amputation and cost effectiveness. Males were found to have a higher prevalence most of our patients were between 60-70 age group, amputation pattern demonstrated an above the knee amputation region to be the highest and a total cost of 1356100 S.R.was calculated.

Keywords: Pattern of Diabetic Foot disorder, King Khalid Hospital, Hail, Saudi Arabia

1. Introduction

Diabetes is a chronic disease that can lead to complications one of them is diabetic foot. The development of diabetic foot ulcers usually results from peripheral neuropathy and defective vascularity. The clinical presentation of Diabetic foot (DF) is variable and diabetic foot problems such as ulcerations, infections and gangrene are causes of mortality and they are often healed.

In Saudi Arabia, to treat such a problems we need routine ulcer cares, treatment of infections, amputations, and hospitalizations, which costs billions of Riyals every year and places a tremendous burden on the health care system.

To our knowledge and being one of the new universities, few researches were done on diabetes mellitus with no researches on DF. So, the aim of the present study was to identify the prevalence of diabetic foot, associated diseases, pattern of amputation and cost effectiveness among King Khalid Hospital (KKH) patients in Hail region, Saudi Arabia during year of 2013.

2. Material and Method

This study is a retrospective study including 840 Diabetic foot DF patients who have been already diagnosed from 2765 diabetic cases with a percentage of (30.3%) from all diabetic case. Files from Diabetes Department, KKH were studied and analysed during the year of 2013. The sociodemographic data, associated disease, and pattern of amputation were collected from the files of the patients. The cost was obtained also from the financial section .It was signed and approved by KKH director.

Age	Number and percentages of patients with DF	
	No.	%
20-<40	35	4.2%
40-<60	233	27.7%
60-<80	529	63.1%
>80	43	5.1 %
Total	840	100%

3. Results

Table 1: Gender distribution among patients with diabetic foot in King Khalid Hospital, Hail region, Saudi Arabia;

Gender	Total number of patients having DF	
	No.	%
Males	484	58%
Females	356	42 %
Total	840	100%

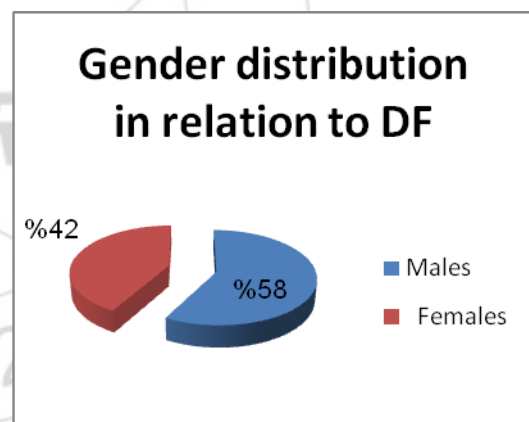


Table 2: Age distribution among patients with diabetic foot in King Khalid Hospital, Hail region, Saudi Arabia:

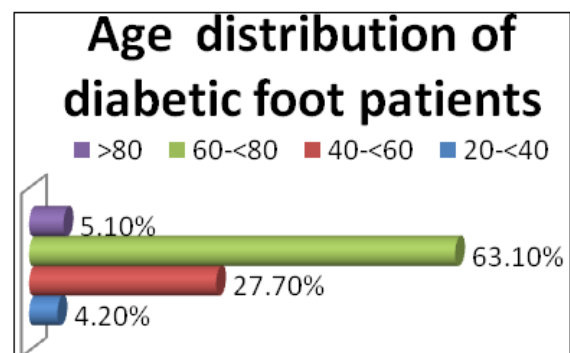


Table 3: Associated disease with diabetic foot among patients with diabetic foot in King Khalid Hospital, Hail region, Saudi Arabia:

Associated diseases	Number and percentages Of patients with DF	
	No.	%
Hypertension	410	48.8%
Renal disease	198	23.6%
Cardiac diseases	318	37.9%
Renal &hypertension	321	38.2 %
Renal & cardiac	236	28.1%
Hypertension & cardiac	219	26.1
Hypertension, Cardiac & Renal diseases	89	10.6

Total number of patients with diabetic foot: 840

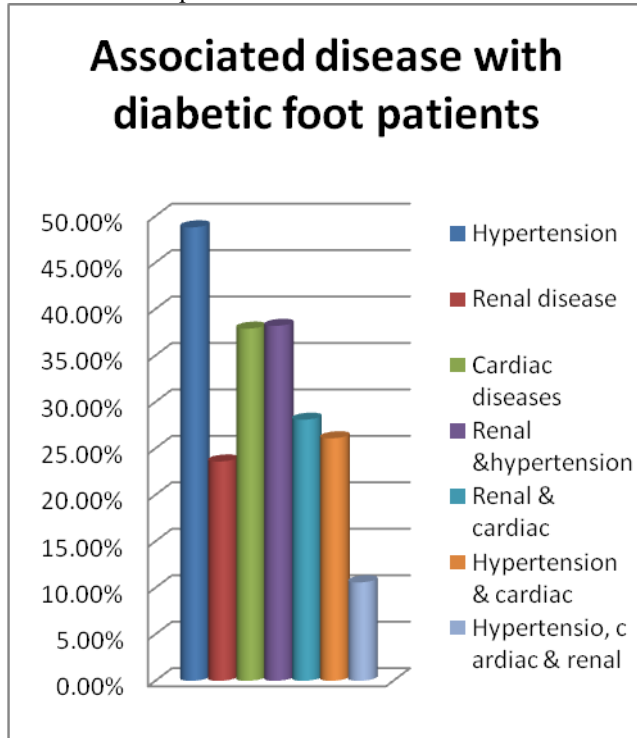


Table 4: Pattern and Classifications of Amputation in diabetic foot patients

Among patients with diabetic foot in King Khalid Hospital, Hail region, Saudi Arabia:

Amputation	Number and percentages of patients having amputation	
	No.	%
Above knee	8	47%
Below knee	2	11.7%
Finger	1	5.8%
Toes	6	35.5%
Total	17	100%

Total number of amputated cases: 17

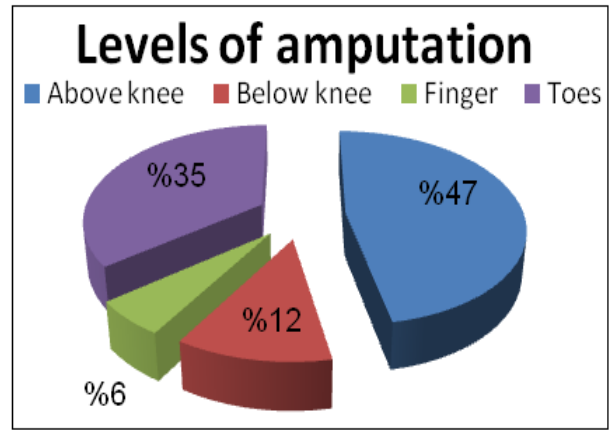


Table 5: Cost effectiveness of among patients with diabetic foot in King Khalid hospital, Hail region, Saudi Arabia

Procedure	Number of patients	Cost per procedure/SR	Total costs /SR
Dressing and Debridement	525	196	102,900
Stent	170	7,000	1,190,000
Above knee amputation procedure	9	4700	42,300
Below knee and above ankle amputation procedure	12	4400	52,800
Below ankle Amputation	11	2400	26,400
Toe amputation	15	2400	36,000
Total	717	--	1, 448,000

Total number of amputated cases: 47

The results of the present study revealed that were found to have type II diabetes Males (58%) were commonly affected by diabetic foot than females and most of them were within the range of 60-<80year with average age of +/- 62 years. hypertension was mainly associated with cases having DF (48.8 %). 17(2%) of the cases had undergone amputation operations. 0.95% and Patients with above knee amputation represents the majority of total amputated cases (0,95%). The total diabetic foot care cost was 1, 448,000 S.R.

4. Discussion

In the present study the prevalence of DF among type-II diabetic cases attended to the Diabetes department, was (30.3%). It is higher than that reported in Jeddah (Alzahrani et al; 2014). This difference could be explained on the basis that the better health care service and education which give the patients better diabetic control. Males with DF in the current work represented a higher ratio than females (58%), which is near to that obtained from a study done in Riyadh (62.5%) (Sulimani et al, 1991).

Age distribution among our patients revealed that the most common age group affected was those of **60-<80 years** (63.1 %) which is near the figure obtained from Riyadh (age average 58) (Sulimani et al, 1991). . However, the average age affected by DF was lower (53 %) in United Arabs of Emirates (Al-Maskari and El-Sadig M; 2007, Sulimani et al.

1991). The high prevalence of DF among these advanced age group may be due to poor glycaemic and lipid control, associated diseases, poor foot care in elderlies and bad choice of footwear. (Al-Khaldi; 2008)

In the current study, the most prevalent diseases associated with DF were the hypertension (48.8%). Other study revealed the combination of cardiac diseases with hypertension was the most common among their patients (Alzahrani et al; 2014), The associated diseases reported in the present study were similar to those recorded in that of Jeddah which are hypertension, cardiac disease and renal which are correlate with result found in Jeddah. This further confirms that associated diseases could be risk factor for DF. (Abolfotouh et al; 2011)

Unexpectedly, our data suggest that patients who underwent amputation had mainly above knee amputation (47%). On the other hand, the common amputation was below knee type in patients of Dammam (Elsharawy; 2011). The difference may be due to advanced foot gangrene that usually left untreated in Hail community.

The cost effective of DF care calculated to be a total of (1, 448,000 S.R.) The most costly procedure done was stenting these may be due to the high-prices of the material used in these procedure. A study in England was found, but it was broader and includes a whole country rather than a city, a total DF care cost per year was (3,398, 2200 S.R) and the most costly was dressing and debridement. (Kerr; 2014)

5. Conclusion

The prevalence of DF among type-II diabetic cases attended to the Diabetes department, was (30.3%). Males were found to have a higher prevalence most of our patients were between 60-70 age group, amputation pattern demonstrated an above the knee amputation region to be the highest and a total cost of 1356100 S.R was calculated.

6. Recommendations

- 1) Health education programs about diabetes control and diabetic foot should be held regularly in institutions , universities, schools and hospitals as well
- 2) Propagation of diabetes control and diabetic foot education programs through Mass media and newspapers

7. Limitation of the Study

Although this study, included 840 participants, this sample is not considered enough to represent the whole Hail community, so in the future , it should extend to cover more areas and hospitals of hail region specially those of the remote villages .

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