Retrospective study, to determine the average life expectancy of diabetes mellitus patients' post-lower extremity amputation at a regional hospital in a South African setting.

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Background 1

- Diabetes mellitus (DM) has become such a prevalent condition that is consuming a significant portion of the healthcare budget. [1,2]
- Main reason for amputation in DM patients, especially in low to middle income countries is diabetic foot sepsis. [2,3]
- Foot sepsis in DM patients if not controlled will end up with major lower amputation or even mortality. [3]
- DM is the number 1 cause of non-traumatic limb amputation worldwide. [4,5]

Background 2

- Every patient who develops DM complications reflects a poor quality of care.[6]
- Appropriate mx of Diabetic foot ulceration requires significant political will amongst all health professionals. [7,8]
- With increasing rates of DM incidence there is therefore a correlation of increasing amputations. Hence the need for a model of prevention. [9]

Aim and objectives

- **Aim:**
  - Determine the average life expectancy following lower extremity amputation for diabetic foot sepsis at Leratong Hospital.
- **Objectives**
  - Insight into the quality of care of diabetic foot sepsis.
  - How effective are lower extremity amputations in improving patient outcomes.

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Methods

- ***Nature***: Retrospective study as part of MDT investigation of the model to reduce lower amputation in diabetic patients in South African setting.
- ***Setting***: Leratong Hospital
- ***Period***: January 2016 to December 2020
- ***Population***: DM undergoing lower extremity amputations
- ***Sample***: 197 entries
- ***Data collection***
  - Data of all consecutive patients who underwent a minor or major amputation associated with DFS, collected from file and theatre records. This includes demography, comorbidities, biochemistry results, admission status, laterization, clinical findings.
  - Occurrence of death confirmed with family members of the diseased using a structured questionnaire, telephonically
- ***Ethics***
  - Ethics clearance number: M190563
  - NHRD number: GP_201907_001

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Data Analysis

- StataSE version 17.0 edition used to analyse data.
- Categorical data were summarized using percentages and continuous data using the median or mean.
- Comparison of categorical findings were compared using Chi-square or Fisher's exact and for continuous data using t-test or Mann-Whitney test.
- Shapiro-Wilk test was used to confirm normal distribution of continuous data.
- Multivariate logistic regression was conducted to establish the influence of the co-morbidities on mortality.
- A p-value of below 0.05 was deemed significant.

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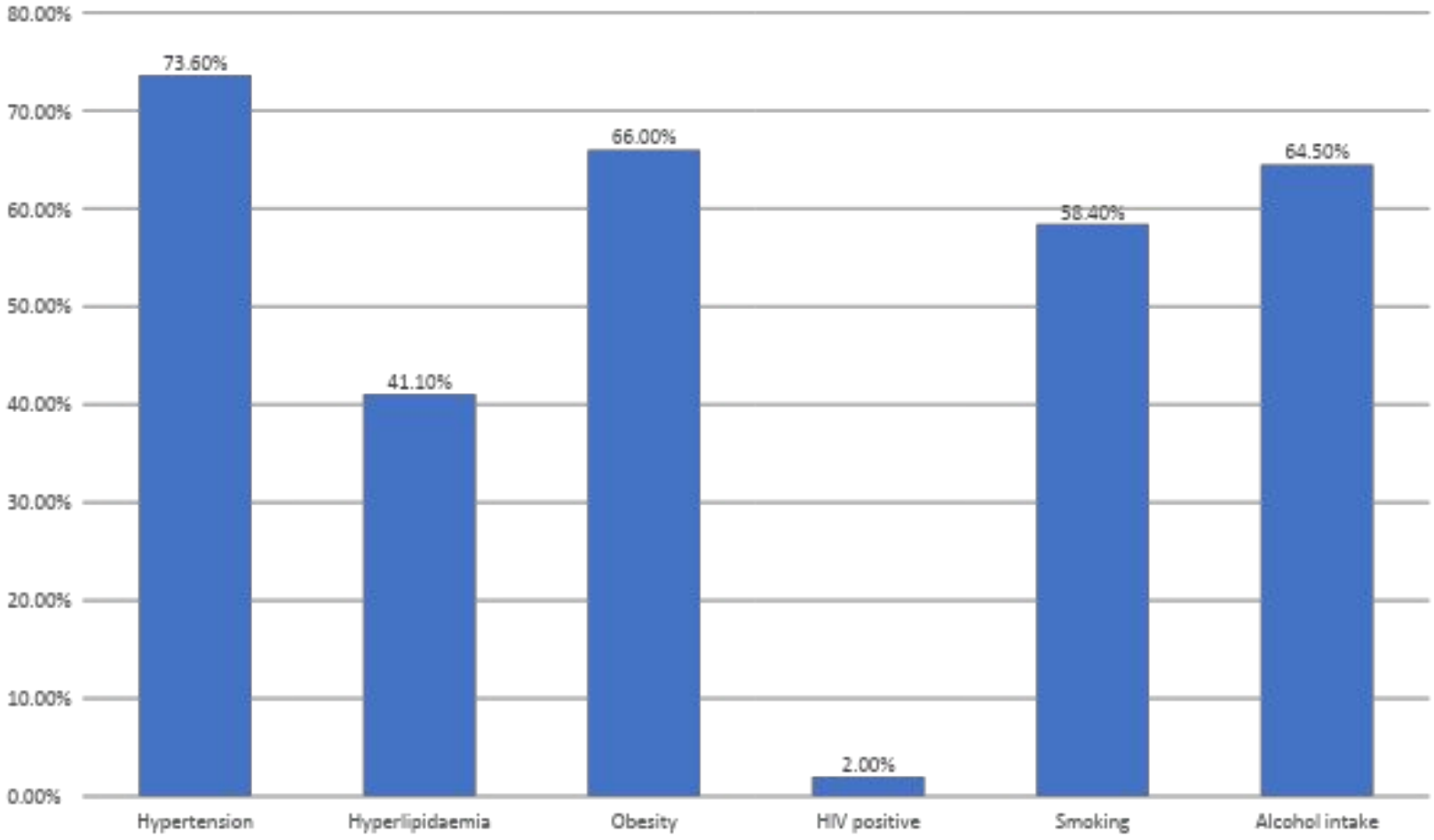
Results: Demography

Modality	Category	Number (%)
Participants	Total	197
Gender	Male Female	125 (63%) 72 (37%)
Race	Black White	164 (83%) 33 (17%)
Laterization	Right Left Bilateral	115 (58%) 77 (39%) 5 (3%)
Site of ulcer	Toe Foot Below knee Above Knee	15 (8%) 147 (74%) 23 (12%) 12 (6%)
Clinical findings	Septic Wet gangrene Dry gangrene	121 (61%) 10 (5%) 16 (8%)
Type of Diabetes	Type 1 Type 2	197 (100%) 0

Results 2

Modality	Category	Number (%)
Age group	30-40 41-50 51-60 61-70 71-80 81-90 91-100	8 (4%) 30 (15%) 53 (27%) 73 (37%) 29 (15%) 3 (1.5%) 1(0.5%)
Post-operative status	Alive Demised	156 (81%) 38 (19%)
Death by year	2016 2017 2018 2019 2020	7 (18%) 9 (24%) 9 (24%) 5 (13%) 8 (18%)
Death by age	30-40 41-50 51-60 61-70 71-80 81-90 91-100	0 0 1 (3%) 15 (39%) 20 (52%) 1 (3%) 1 (3%0

Prevalence of co-morbidity in patients who had DFS



Variable	Males	Females	P-value
Duration of diabetes			0.976
Median			
Range in years	6-42	2-46	
Clinical findings			0.572
Wet gangrene	7 (4%)	3 (1.5%)	
Dry gangrene	12 (6%)	4 (2%)	
Septic	106 (54%)	65 (33%)	
Hypertension			0.315
Yes	95 (48%)	50 (25%)	
No	30 (15%)	22 (12%)	
Dyslipidaemia			0.905
Yes	51 (26%)	30 (15%)	
No	74 (38%)	42 (21%)	
HIV status			0.139
Positive	1 (0.5%)	3(1.5%)	
Negative	124 (63%%)	69 (35%)	
Smoking			0.226
Yes	77 (39%)	38 (19%)	
No	48 (24%)	34 (18%)	
Alcohol			0.022
Yes	88 (45%)	39 (20%)	
No	37 (19%)	33 (16%)	
Obesity			0.161
Yes	78 (40%)	52 (26%)	
No	47 (24%)	20 (10%)	

Results: Multivariate logistic regression for the influence of co-morbidities on the occurrence of mortality

Logistic regression

Number of obs = 197
LR chi2(8) = 18.87
Prob > chi2 = 0.0156
Pseudo R2 = 0.0977

Log likelihood = -87.171463

DeathYes1No0	Odds ratio	Std. err.	z	P>|z|	[95% conf.	interval]
Age	.9053616	.0291783	-3.08	0.002	.849942	.9643948
GenderM1F0	.35177	.1401497	-2.62	0.009	.1611125	.7680482
Durationofdiabetesinyears	1.113995	.0511542	2.35	0.019	1.018114	1.218906
HypertensionYes1No0	1.817824	.8674711	1.25	0.210	.7134373	4.631778
SmokingYes1No0	1.026215	.3992181	0.07	0.947	.4787449	2.199747
AlcoholYes1No0	1.401828	.5848208	0.81	0.418	.6188516	3.175432
ObesityYes1No0	.8428784	.3561535	-0.40	0.686	.3682091	1.929458
HyperlipidaemiaYes1No0	.8370269	.3436147	-0.43	0.665	.3743741	1.871428
_cons	12.30421	17.02323	1.81	0.070	.8173196	185.2319

Note: _cons estimates baseline odds.

Limitations

- Since it is a retrospective study, patient information was only attainable through the records available.
- Some of the patients could not be reached. As a result, the occurrence of death could not be ascertained.
- Single centre study.

Conclusion

- Average life expectancy as determined in the study was 1250 days ~ 3.4years.
  - The 38 patients that demised (19%), all had died by 4 years post-amputation.
  - 64% of the demised patients being 65 years and above. (Age/Death: ***p-value 0.002***)
- Diabetic foot sepsis (DFS) was common in males as compared to females. However, mortality occurred more in females.
  - 11% mortality of the 19% was of females.
  - As per the explored other comorbidities, 65% of the demised females had 3 or more comorbidities. Commonest amongst them being hypertension.
  - Average period to death of all demised patients was 395 days ~ 1.1 years
- Amputation rate in the study was 96.5%.
  - All patients with salvaged limbs, had CRP's <100.
  - All are still alive.

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  - Registrar: **Dr V. Sidhizha**

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Thanks/appreciation

Thank you

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