CLINICAL FACTORS AND SEVERITY OF DIABETIC FOOT INFECTION ACCORDING TO PEDIS CLASSIFICATION

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INTRODUCTION

The complications related to ulcerated foot lesions are a common cause of hospitalization among diabetics.

Diabetic foot infection is associated with high morbidity: more hospital care visits, longer hospital stays, broad-spectrum antibiotic therapy and need for surgical intervention.

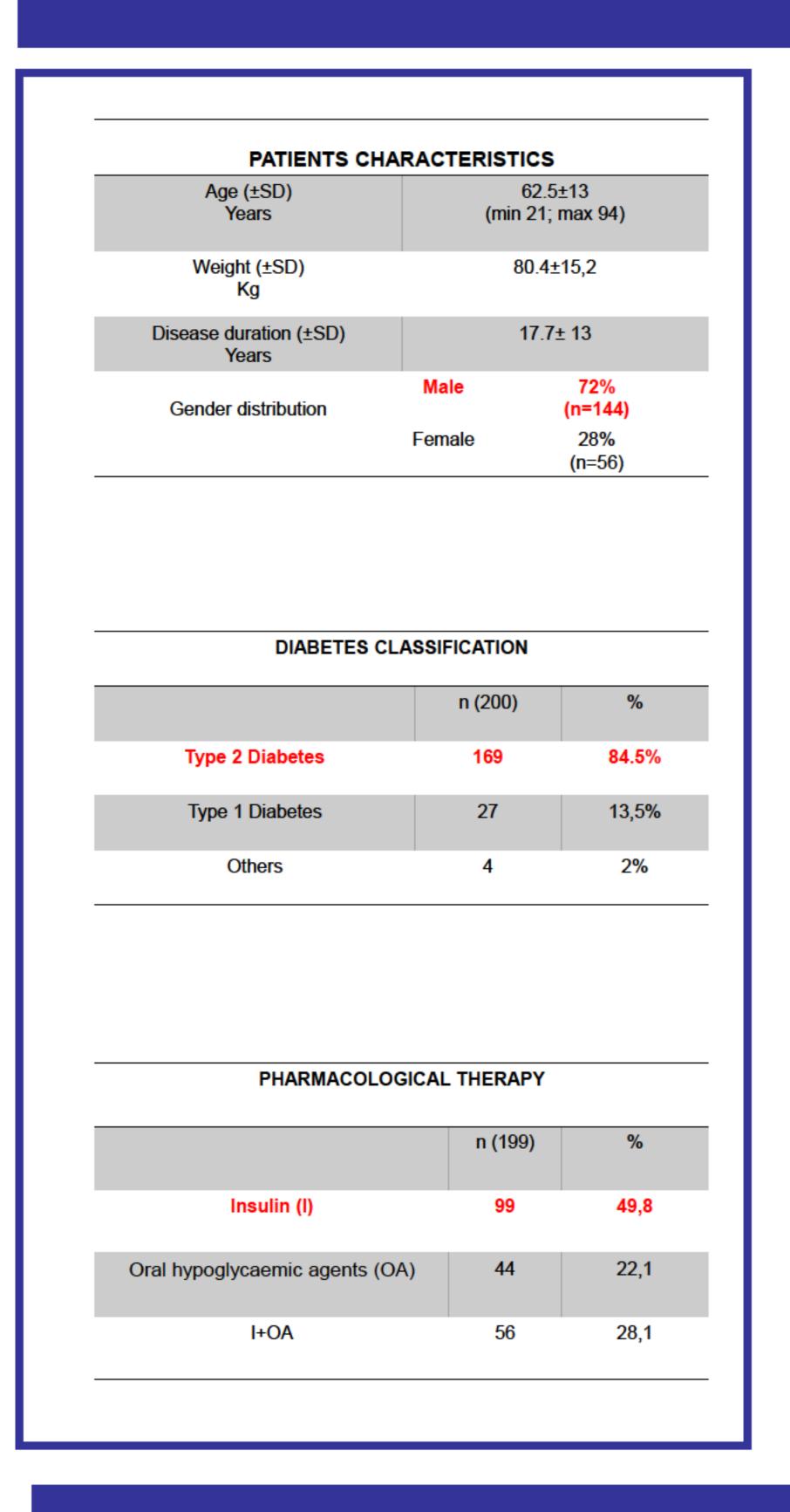Infection is the most common precipitating factor to precede amputations of the lower limbs.

Our aim was evaluate the relationship between different clinical factors and severity of diabetic foot ulcers and estimate the impact of each factor on final classification.
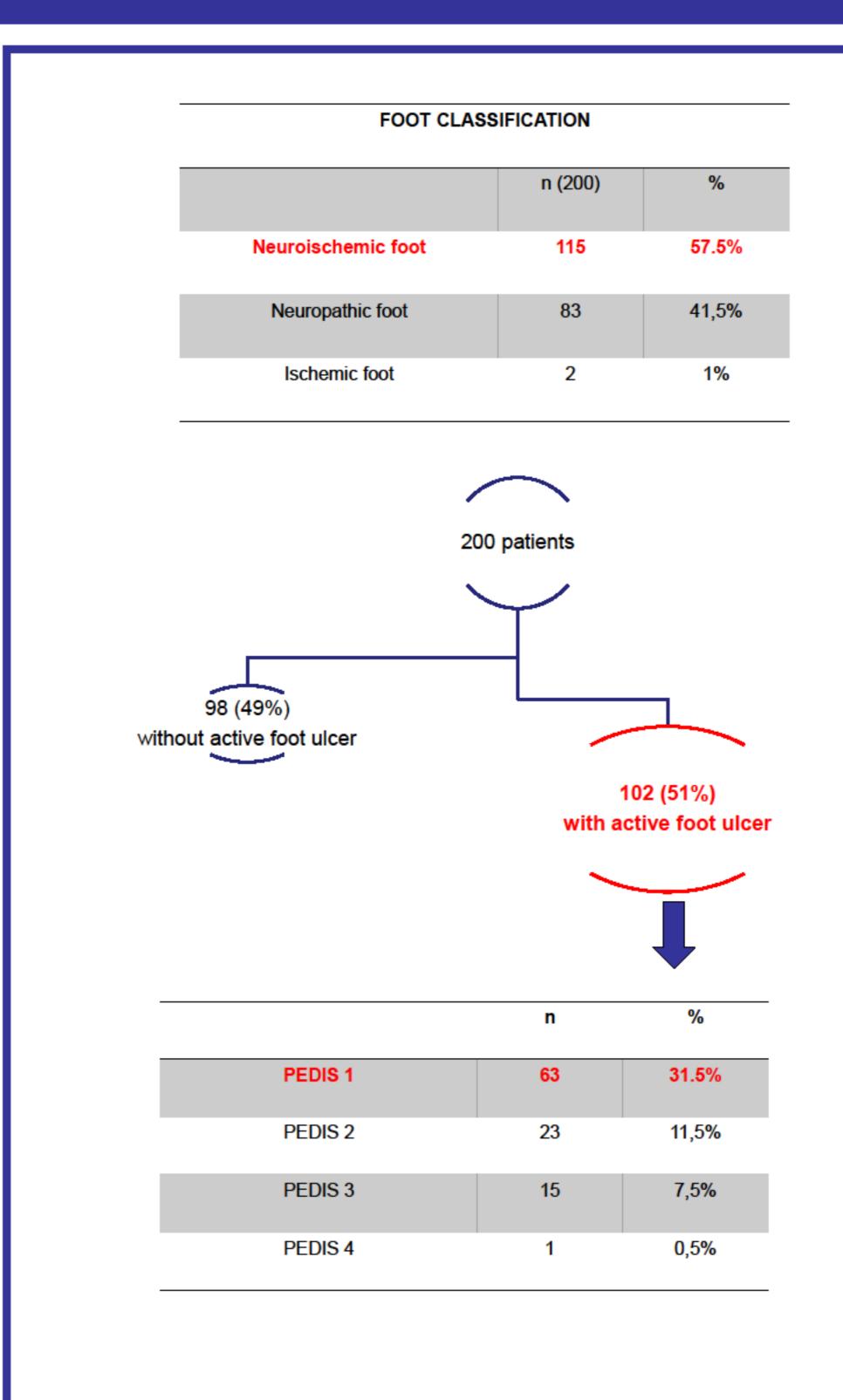
METHODS

- Retrospective, cohort study;
- Participants: 200 patients from the Diabetic Foot consultation of the Endocrinology;
- Data were collected between 1 January and 31 August 2015;
- Ulcerated lesions were classified according to the clinical infection criteria of the PEDIS classification of the IWGDF/IDSA:

1	Uninfected
2	Mild infection
3	Moderate infection
4	Severe infection

RESULTS

PATIENTS CHARACTERISTICS

Age (±SD) Years	62.5±13 (min 21; max 94)
Weight (±SD) Kg	80.4±15,2
Disease duration (±SD) Years	17.7± 13
Gender distribution	**Male 72% (n=144)**
	Female 28% (n=56)

DIABETES CLASSIFICATION

	n (200)	%
Type 2 Diabetes	**169**	**84.5%**
Type 1 Diabetes	27	13,5%
Others	4	2%

PHARMACOLOGICAL THERAPY

	n (199)	%
Insulin (I)	**99**	**49,8**
Oral hypoglycaemic agents (OA)	44	22,1
I+OA	56	28,1

FOOT CLASSIFICATION

	n (200)	%
Neuroischemic foot	**115**	**57.5%**
Neuropathic foot	83	41,5%
Ischemic foot	2	1%

200 patients

98 (49%) without active foot ulcer

102 (51%) with active foot ulcer

	n	%
PEDIS 1	**63**	**31.5%**
PEDIS 2	23	11,5%
PEDIS 3	15	7,5%
PEDIS 4	1	0,5%

CLINICAL FACTORS AND SEVERITY OF DIABETIC FOOT INFECTION

		Pedis 1 (n=63)	Pedis 2 (n=23)	Pedis 3 (n=15)	Pedis 4 (n=1)	Estimated impact+	Sig. +
Diabetic retinopathy	YES	45, 71,4%	17, 73,9%	10, 66,7%	1, 100,0%	0,651	0,022
	NO	18; 28,6%	6, 26,1%	5, 33,3%	0, 0,0%		
History of foot ulcer	YES	55, 87,3%	22, 95,7%	12, 80,0%	1, 100,0%	1,504	0,000
	NO	8, 12,7%	1, 4,3%	3, 20,0%	0, 0,0%		
History of osteomyelitis	YES	27, 42,9%	17, 73,9%	13, 86,7%	1, 100,0%	1,301	0,000
	NO	36, 57,1%	6, 26,1%	2, 13,3%	0, 0,0%		
Previous microbiological studies	YES	21, 33,3%	15, 65,2%	9, 60,0%	1, 100,0%	1,079	0,000
	NO	42, 66,7%	8, 34,8%	6, 40,0%	0, 0,0%		
History of revascularization surgery	YES	9, 14,3%	4, 17,4%	3, 20%	0, 0%	-,993	0,019
	NO	54, 85,7%	19, 82,6%	12, 80,0%	1, 100,0%		
Cigarette smoking	YES	13, 20,6%	8, 34,8%	5, 33,3%	1, 100,0%	-,622	0,048
	NO	50, 79,4%	15, 65,2%	10, 66,7%	0, 0,0%		
Insulin therapy	YES	45; 71,4%	22; 95,7%	14; 93,3%	1;100%	-,540	0,105
	NO	18; 28,6%	1; 4,3%	1; 6,7%	0; 0%		
Renal replacement therapy	YES	5, 7,9%	2, 8,7%	3, 20,0%	1, 100,0%	0,323	0,448
	NO	58, 92,1%	21, 91,3%	12, 80,0%	0, 0,0%		
History of minor amputation	YES	14, 22,2%	12, 52,2%	2, 13,3%	1, 100,0%	0,519	0,089
	NO	49, 77,8%	11, 47,8%	13, 86,7%	0, 0,0%		
History of major amputation	YES	5, 7,9%	4, 17,4%	4, 26,7%	0, 0,0%	0,439	0,274
	NO	58, 92,1%	19, 82,6%	11, 73,3%	1, 100,0%		
HbA1c		7,7%	8,7%	8,9%	10,5%	0,238	0,002
Disease duration (years)		19,21	18,91	19,53	23,00	0,019	0,089
Age (years)		68,8±11,7	65,6±14,8	60,2±11,8	39,0	0,005	0,646

+ Ordinal regression

DISCUSSION

- Our sample consists in 84.5% of patients with type 2 diabetes mellitus, mean age of 62.5 ± 13 years and mean duration of disease of 17.7 ± 13 years.
- Regarding to foot classification, 57.5% were classified as neuroischemic diabetic foot.
- Of the 200 patients, 51% had active ulcers classified in 31.5% of the patients as grade 1 (n=63).
- Concerning the therapeutic, 77.5% of the patients were under insulin therapy. Despite the trend towards higher number of patients on insulin therapy in higher categories of infection, this did not reach statistical significance (p = 0.105).
- The presence of diabetic retinopathy (p=0.022), previous history of ulcers (p=0.000) and osteomyelitis (p=0.000) and higher values of HbA1c (p=0.002) were associated with a significant increase in the severity of infection.
- The existence of previous microbiological studies were associated with clinically more severe infections probably related to the bias of higher patient risk profile whom studies are requested (p=0.000).
- Patients with no personal history of revascularization surgery (p=0.019) and no history of smoking (p=0.048) were associated with lower ulcerated lesion classification categories.

CONCLUSIONS

Diabetic foot ulcers are highly prevalent and are associated with high morbidity and mortality.

The presence of diabetic retinopathy, previous history of ulcers and osteomyelitis and higher HbA1c values have an impact with statistical significance in the direction of worsening infection category.

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