



VASCUPEDIA



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# Validation of the Wifi classification system in non diabetic patients treated by endovascular means for critical limb ischemia

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# The Wifi Classification System

- Was initially published in January 2014
- Stratification of amputation risk based on three factors: **Wound**, **Ischemia** and **foot Infection**
- 64 combinations reflecting the risk of limb amputation at 1 year as stage **very low**, **low**, **moderate** and **high risk**

## SOCIETY FOR VASCULAR SURGERY® DOCUMENT

### The Society for Vascular Surgery Lower Extremity Threatened Limb Classification System: Risk stratification based on Wound, Ischemia, and foot Infection (Wifi)

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Critical limb ischemia, first defined in 1982, was intended to delineate a subgroup of patients with a threatened lower extremity primarily because of chronic ischemia. It was the intent of the original authors that patients with diabetes be excluded or analyzed separately. The Fontaine and Rutherford Systems have been used to classify risk of amputation and likelihood of benefit from revascularization by subcategorizing patients into two groups: ischemic rest pain and tissue loss. Due to demographic shifts over the last 40 years, especially a dramatic rise in the incidence of diabetes mellitus and rapidly expanding techniques of revascularization, it has become increasingly difficult to perform meaningful outcomes analysis for patients with threatened limbs using these existing classification systems. Particularly in patients with diabetes, limb threat is part of a broad disease spectrum. Perfusion is only one determinant of outcome; wound extent and the presence and severity of infection also greatly impact the threat to a limb. Therefore, the Society for Vascular Surgery Lower Extremity Guidelines Committee undertook the task of creating a new classification of the threatened lower extremity that reflects these important considerations. We term this new framework, the Society for Vascular Surgery Lower Extremity Threatened Limb Classification System. Risk stratification is based on three major factors that impact amputation risk and clinical management: Wound, Ischemia, and foot Infection (Wifi). The implementation of this classification system is intended to permit more meaningful analysis of outcomes for various forms of therapy in this challenging, but heterogeneous population. (J Vasc Surg 2014;59:220-34.)

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# Studies validating the prognostic value of Wifi

Cull et al, JVS Dec 14

DIABETICS  
66%

multiple types of therapy

Causey et al, JVS June 14

DIABETICS  
65%

multiple types of therapy

Zhan et al, JVS April 15

DIABETICS  
93%

multiple types of therapy

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# Aim of the study

To evaluate the prognostic value of the Wifl classification in a well-defined group of patients

- nondiabetics
- After endovascular treatment





# Study design

- Single centre analysis
- January 2013 – September 2014: consecutive CLI patients (CRITISCH Registry)

# Inclusion criteria

- Nondiabetic patients
- Patients undergoing endovascular treatment

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# Endpoints

## Primary endpoint

- death or/and major amputation at discharge and at 1 year

## Secondary endpoints

- in-hospital outcomes
- Death
- Reinterventions



# Demographic data

	Very low risk	Low risk	Moderate risk	High risk	P-value
Total	29	42	29	26	
Age (median, interquartile ratio), in years	79 (70-84)	80 (70-86)	76 (69-85)	76 (65-82)	.633 <sup>1</sup>
Males, (%)	17 (59%)	19 (45%)	18 (62%)	20 (77%)	.073 <sup>2</sup>
Coronary artery disease, (%)	17 (59%)	20 (48%)	14 (48%)	16 (62%)	.820
Previous myocardial infarction < 6m, (%)	0	2 (5%)	1 (3%)	0	.895
Obesity, BMI > 30 kg/m <sup>2</sup> (%)	1 (3%)	0	3 (10%)	2 (8%)	.163
Ongoing tobacco use, (%)	2 (7%)	4 (10%)	3 (10%)	2 (8%)	.891
Previous stroke, (%)	1 (3%)	6 (14%)	4 (14%)	1 (4%)	.989
Chronic kidney disease (60<GFR≤15 ml/min/1.73m <sup>2</sup> ), (%) <sup>3</sup>	10 (37%)	15 (39%)	7 (26%)	10 (48%)	.776
Dialysis or GFR<15ml/min/1.73m <sup>2</sup> , (%) <sup>4</sup>	2 (11%)	3 (11%)	2 (9%)	5 (31%)	.133
Previous vascular intervention	10 (35%)	18 (43%)	13 (45%)	9 (35%)	.950
PREVENT III Score (mean ± SD)	4.3±2.5	3.5±2.3	4.5±2.2	5.2±2.4	.048

# Results

## In-hospital outcomes and death

- No in-hospital death
- One major amputation in group 4 (P=.275)
- One cerebral event in group 3 (P=.577)
- Two ACS in group 1 and 2 (P=.218)

	Stage 1	Stage 2	Stage 3	Stage 4
Median length of stay (d)	3	5	4	6
Minor amputations (%)	3	5	0	0
Discharge at home (%)	93	95	86	89

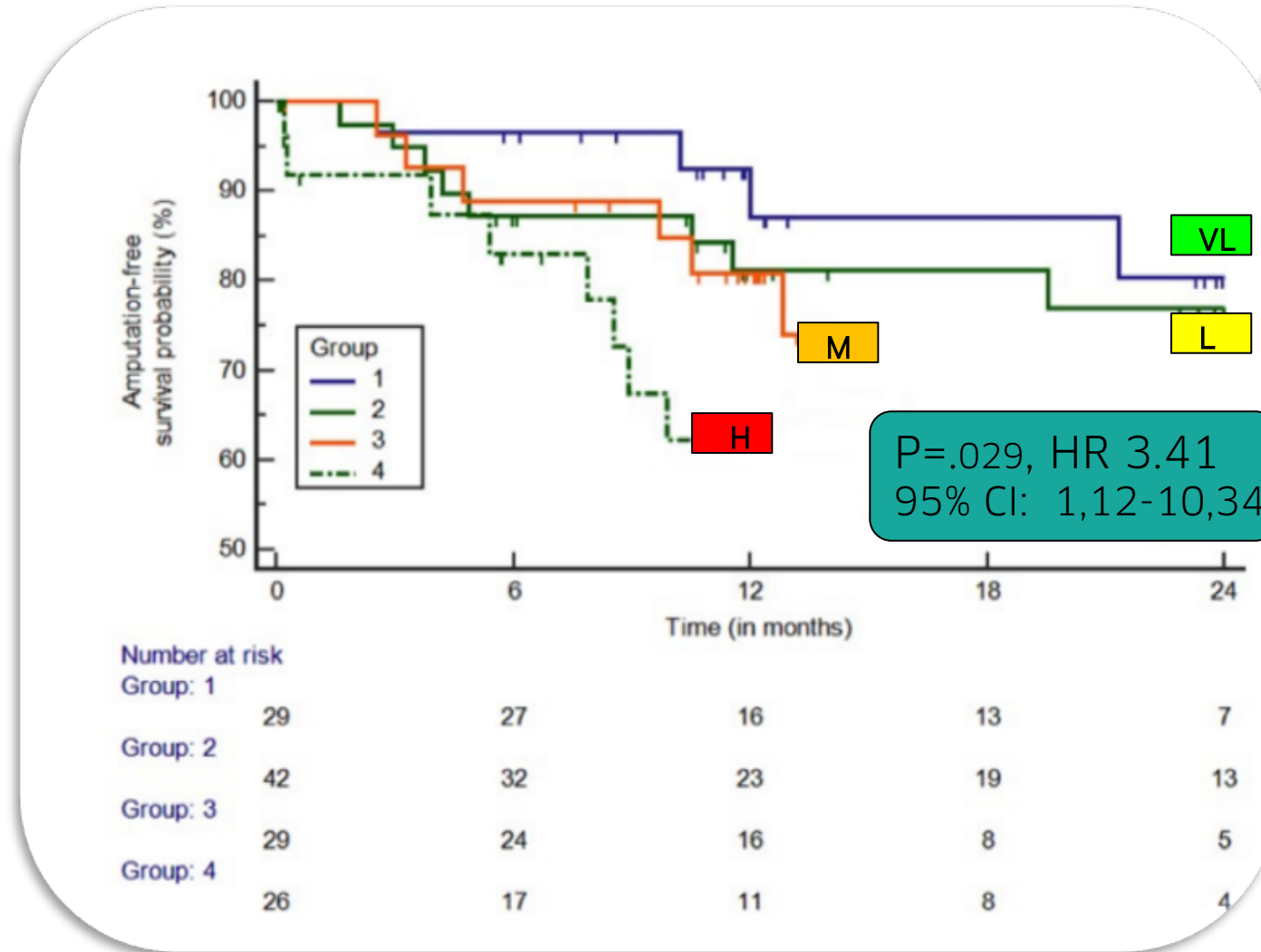


# Reinterventions

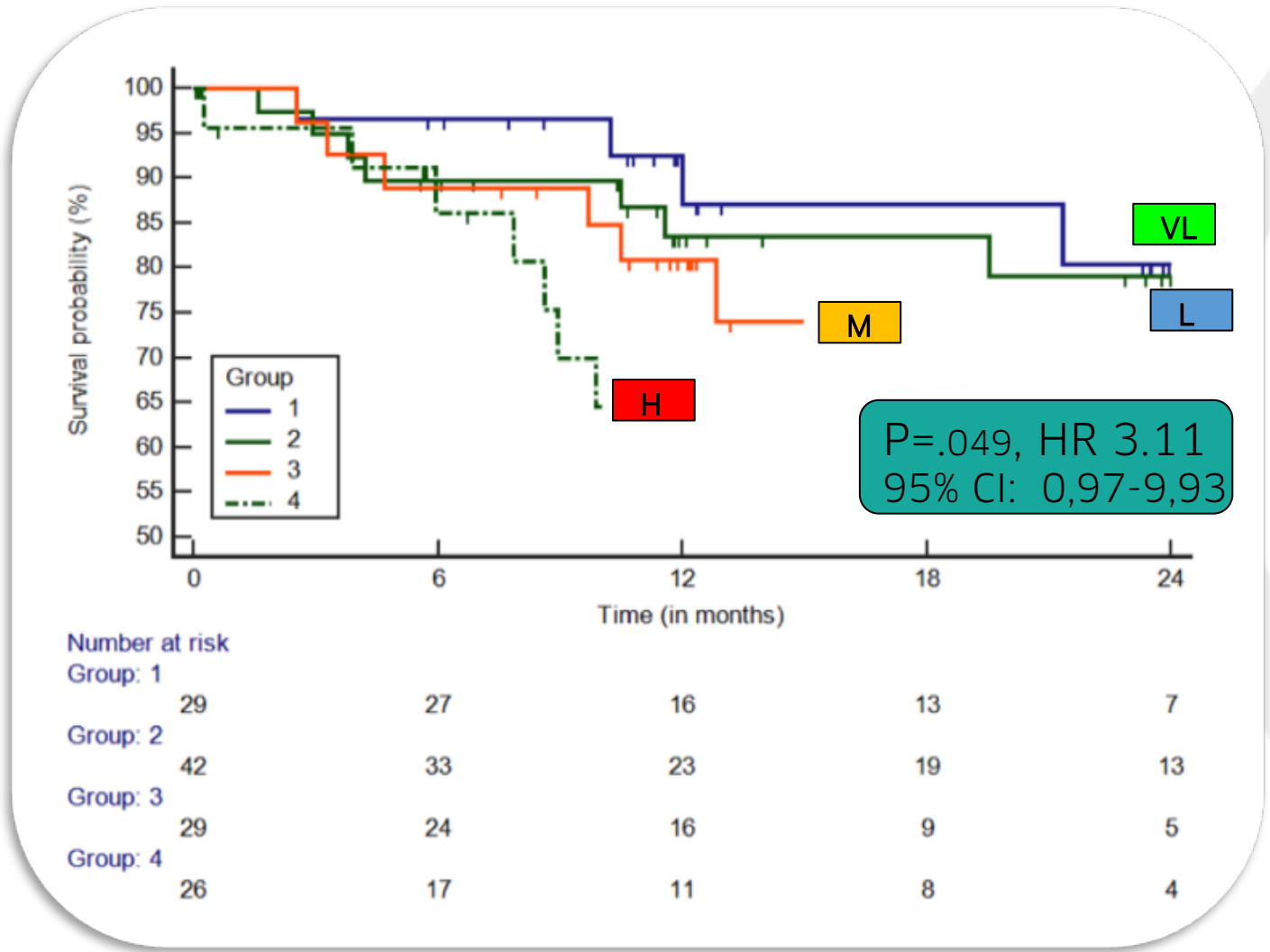
**Table V.** Type and frequency of reinterventions during surveillance among the study groups

<i>Groups</i>	<i>Type of reinterventions</i>	<i>No.</i>	<i>Frequency, No. (%)</i>
Group 1	Total	29	6 (21)
	Open surgery (femoropopliteal bypass)		2 (33)
	Endovascular repair		4 (67)
	Stenting (superficial femoral artery)		1
	Plain balloon angioplasty (common iliac artery)		1
Group 2	Total	42	8 (19)
	Endovascular repair		6 (75)
	Plain balloon angioplasty (anterior tibial artery, superficial femoral artery)		3
	Drug-coated balloon angioplasty (superficial femoral and anterior tibial artery)		2
	Stenting (superficial femoral artery)		1
Group 3	Lumbar sympathetic block (at the index limb)		2 (25)
	Total	29	8 (26)
	Open surgery		3 (37.5)
	Femorocrural bypass		2
	Thrombectomy		1
Group 4	Endovascular repair		4 (50)
	Plain balloon angioplasty (fibular artery)		1
	Stenting (superficial femoral artery)		2
	Drug-coated balloon (deep femoral artery, tibiofibular trunk)		2
	Lumbar sympathetic block (at the index limb)		1 (12.5)
Group 4	Total	26	5 (19)
	Open surgery		4 (80)
	Femorocrural bypass		3
	Thrombectomy		1
	Endovascular		1 (20)
Lysis		1	

# Amputation-free survival probability



# Survival probability



# Conclusions

- Correlation between Wifl and mPREVENT III Score
- Confirmation of the prognostic value of Wifl between very low- and high risk nondiabetics patients treated by endovascular means
- Further simplification of the stages may be necessary (1-3 stages)