

Prognostic role of polyvascular involvement in patients with symptomatic peripheral arterial disease

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Introduction:

Patients with peripheral artery disease (PAD) are at very high risk of future cardiovascular events^{1,2}. However, clinical experience suggests that PAD has a wide range of prognosis due to a different atherosclerotic extent with further vascular beds affected, i.e. coronary artery disease (CAD) and/ or cerebrovascular disease (CeVD)³.

Purpose:

We hypothesized that patients with a polyvascular extent (+ CAD and/ or CeVD) of PAD have poorer prognosis compared to those with PAD alone.

Methods:

Single center longitudinal observational study with symptomatic PAD patients over a period from 2009 to 2019. We related the atherosclerotic extent (PAD, +1 vascular region (+/- CAD or CeVD)(+1V), +2 vascular regions (+ CAD and CeVD)(+2V) to all-cause and cardiovascular mortality as well as to cardiovascular event rate.

Statin Intensity

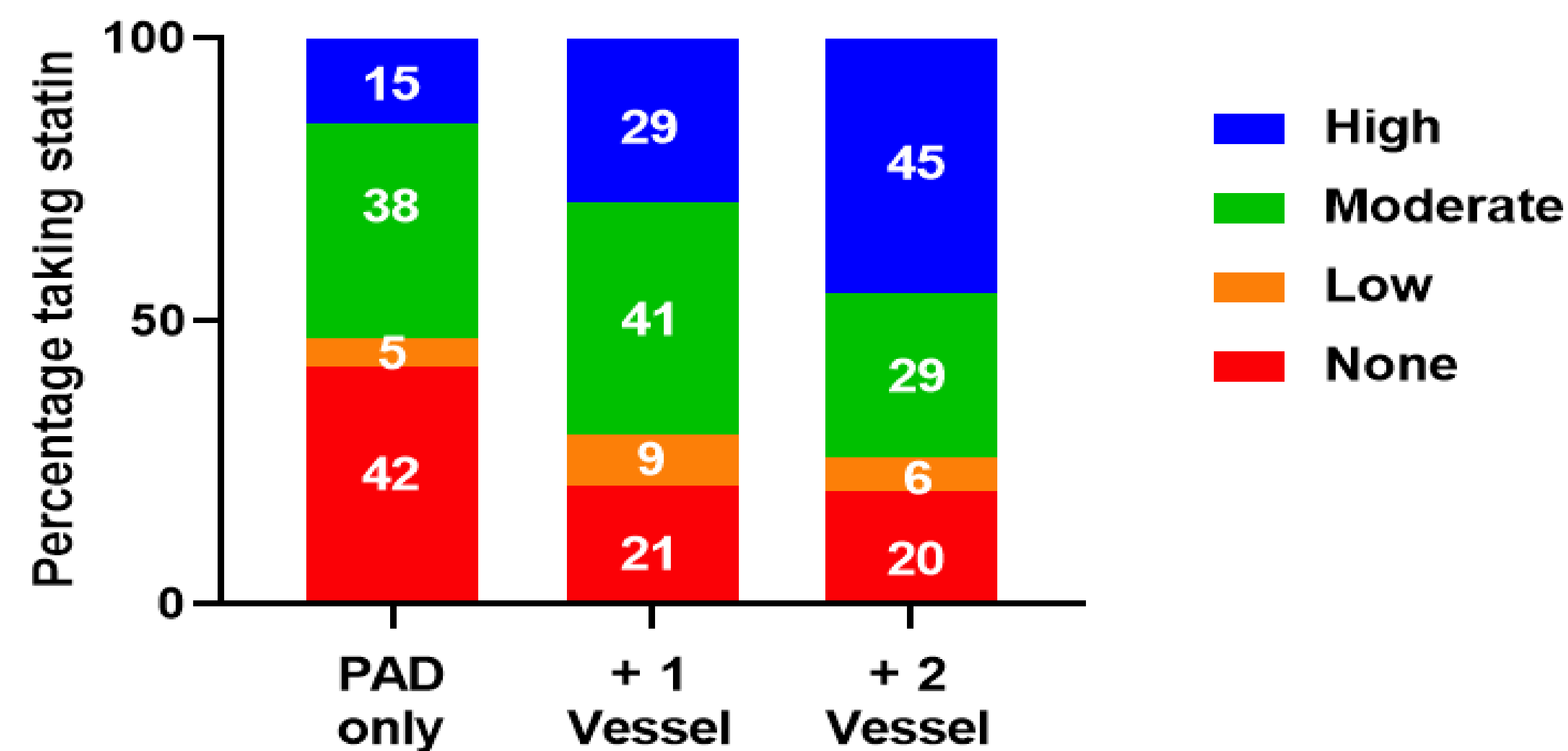


Figure 4: Percentage of statin therapy and intensity in PAD only and polyvascular patients

References:

- 1 Steg P, Bhatt DL, Wilson PF, et al. One-year cardiovascular event rates in outpatients with atherothrombosis. *Jama*. 2007;297(11):1197-206.
- 2 Welten GMJM, Schouten O, Hoeks SE, Chonchol M, Vidakovic R, van Domburg RT, et al. Long-Term Prognosis of Patients With Peripheral Arterial Disease: A Comparison in Patients With Coronary Artery Disease. *Journal of the American College of Cardiology*. 2008;51(16):1588-96.
- 3 Chen DC, Singh GD, Armstrong EJ, Waldo SW, Laird JR, Amsterdam EA. Long-Term Comparative Outcomes of Patients With Peripheral Artery Disease With and Without Concomitant Coronary Artery Disease. *The American Journal of Cardiology*. 2017;119(8):1146-52.

	All Patients n = 1378	PAD only n = 689	+1 V n = 552	+2 V n = 137	p- value
Age (years), mean ± SD	72.0 ± 11.7	70.3 ± 12.4	73.2 ± 11.0	75.6 ± 8.9	< 0.0001
Female gender, n [%]	502 [36]	282 [41]	181 [33]	39 [28]	< 0.01
CVD family history, n [%]	178 [13]	70 [10]	84 [15]	24 [18]	< 0.01
Current smoker, n [%]	636 [46]	363 [53]	226 [41]	46 [34]	< 0.0001
Diabetes, n [%]	419 [30]	165 [24]	194 [35]	60 [44]	< 0.0001
Hypertension, n [%]	1180 [86]	540 [78]	507 [92]	133 [97]	< 0.0001
Hyperlipoproteinemia, n [%]	1012 [73]	449 [65]	456 [83]	109 [80]	< 0.0001
Chronic Kidney disease (CKD), n [%]	954 [69]	430 [62]	414 [75]	110 [80]	< 0.0001

Table 1: Baseline Characteristics

Results:

- Polyvascular patients (+1V and +2V) were older and had more comorbidities compared to PAD only patients (Table 1).
- Guideline conform secondary prevention therapy, in particular statin therapy was significantly lower in PAD than polyvascular patients (+1V and +2V; p< 0.001, Figure 1).
- Despite of the more adequate treatment, all-cause and cardiovascular mortality and event rate was higher in polyvascular patients than in PAD only patients (Figure 2-4)

Conclusion:

PAD patients with a polyvascular involvement receive an adequate guideline conform treatment. Nevertheless, mortality is higher in this population. Our data suggest conversely, that an intensified treatment for PAD patients might help to avoid progression into a polyvascular disease and thus, an increased mortality in this population.

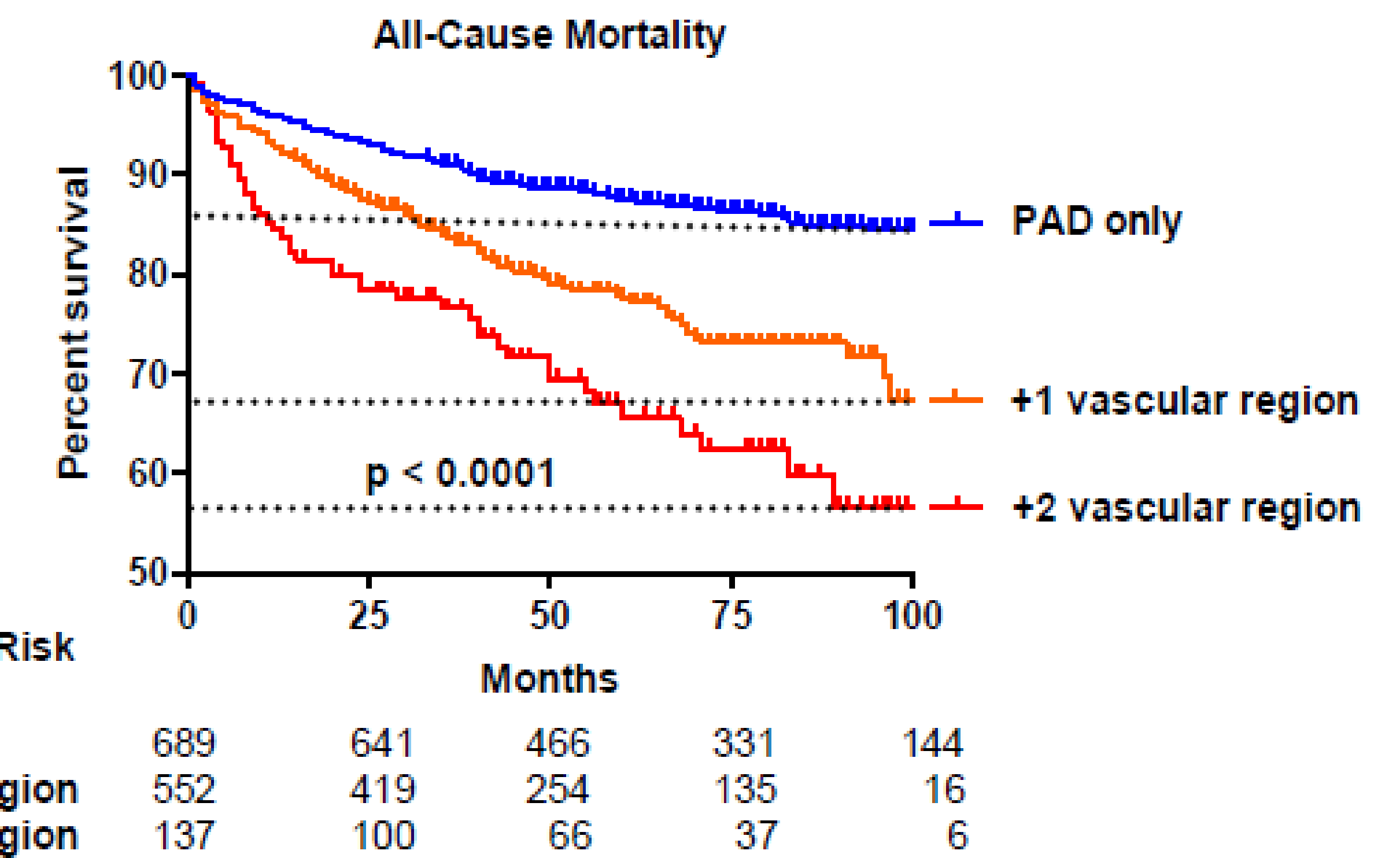


Figure 2: Kaplan-Meier curves representing the influence of polyvascular extend on all-cause mortality

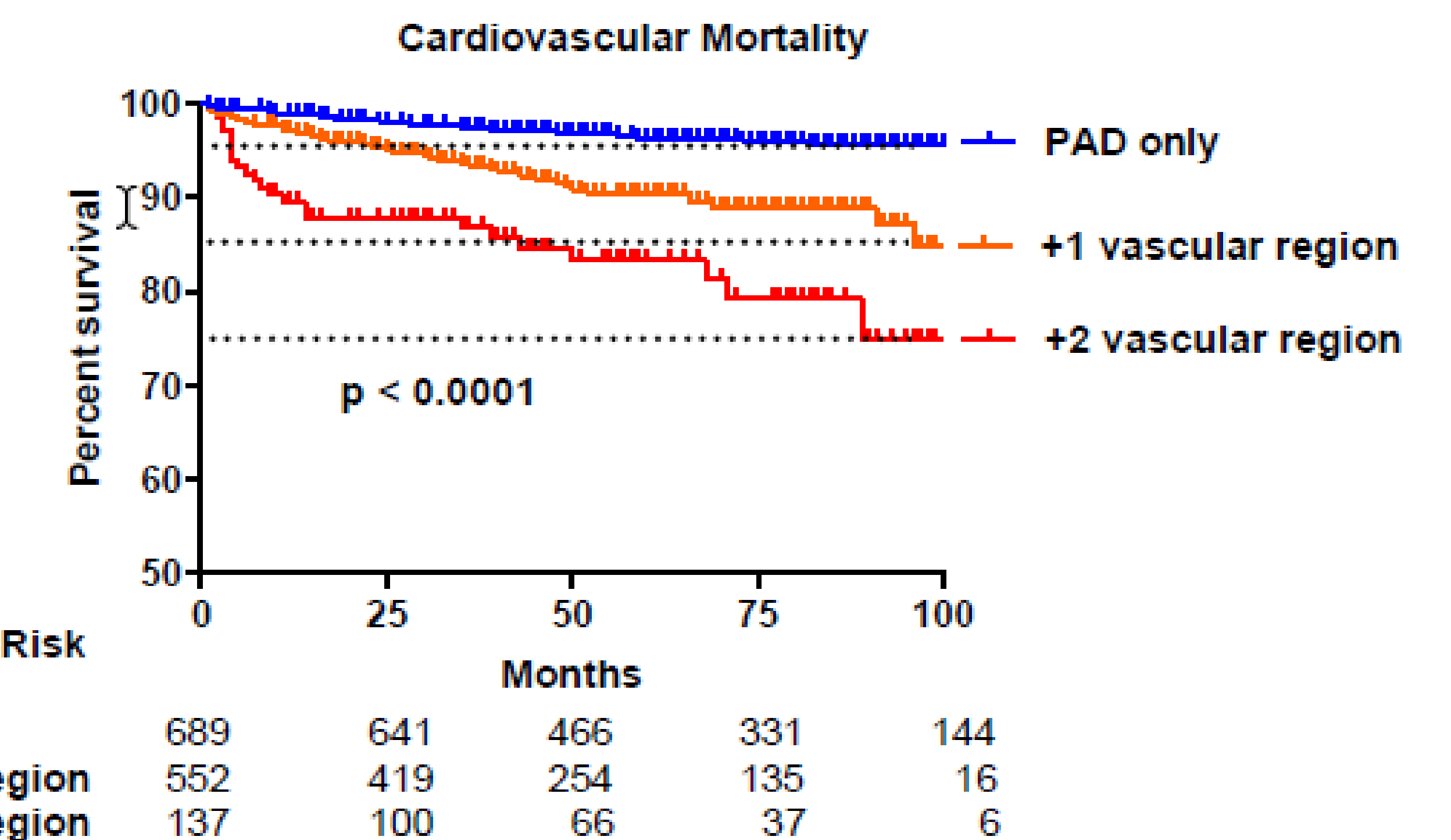


Figure 3: Kaplan-Meier curves representing the influence of polyvascular extend on cardio-vascular mortality

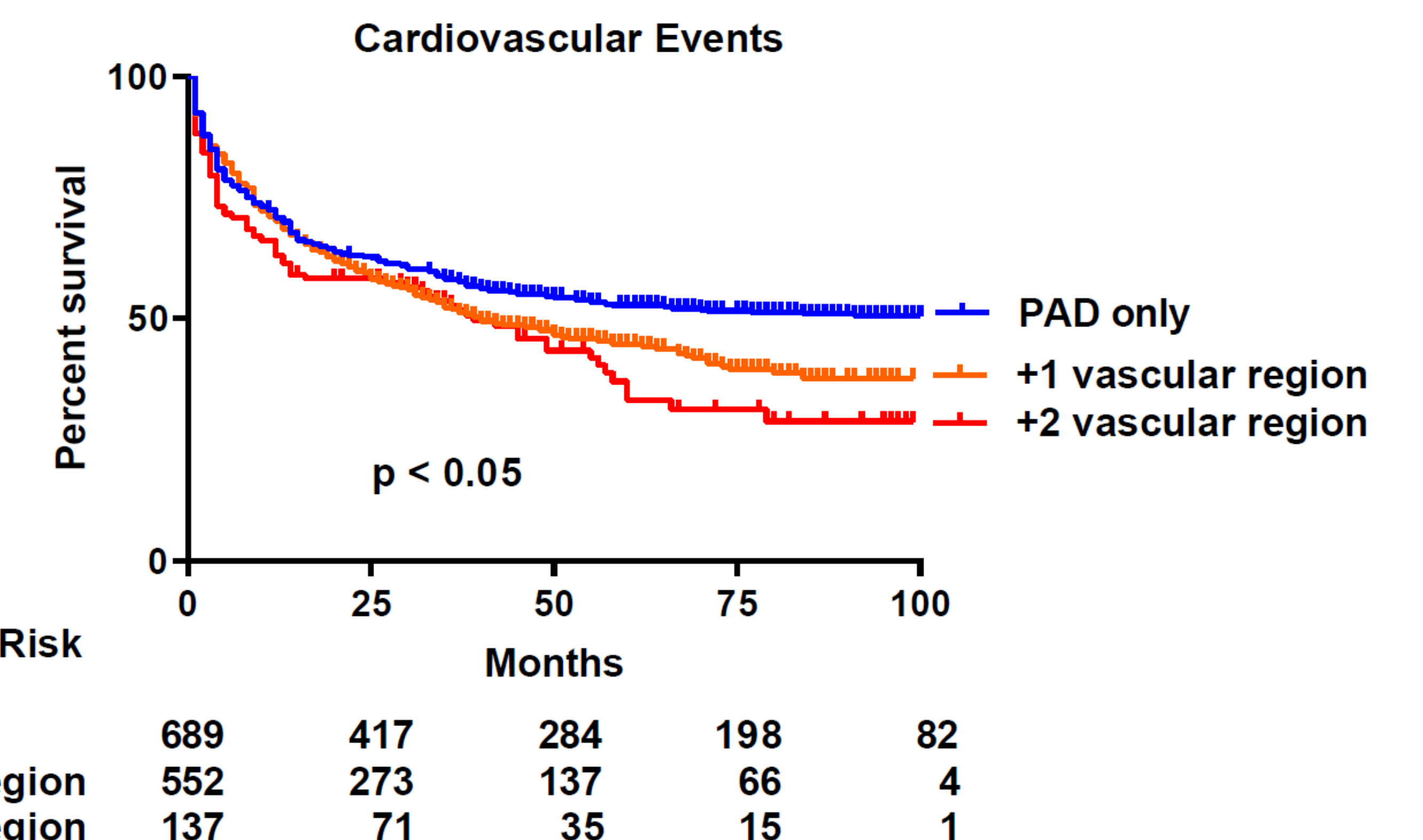


Figure 4: Kaplan-Meier curves representing the influence of polyvascular extend on cardio-vascular events