



Pattern of Serum Cotinine on Patients with Critical Limb Ischemia

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INTRODUCTION

Critical limb ischemia (CLI) is the final stage of peripheral arterial occlusive disease. Smoking has a negative impact on vascular changes and aggravates comorbidities, resulting in a poor prognosis of the disease. Plasma cotinine, the primary metabolite of nicotine, was measured on a cohort of CLI patients to identify its pattern and the association with the disease complications.

MATERIAL AND METHODS

A cohort study was conducted between November 2015 and December 2016 on subjects hospitalized at the Second Surgery Clinic, Emergency County Hospital in Cluj-Napoca, Romania. Serum cotinine higher than 15 ng/mL was considered abnormal.

RESULTS AND DISCUSSION

- Forty-three patients with the mean age of 60.74±10.46 years were investigated.
- Most of the participants were as expected men.
- 29 patients had serum cotinine values ≤15 ng/mL.
- Majority of subjects with serum cotinine >15ng/mL had urban origin (p=0.0016).
- The median cigarettes declared by those with serum cotinine ≤15 ng/mL was 5 cigarettes.
- The median cigarettes declared by those with serum cotinine >15 ng/mL was 22.5 cigarettes.
- No differences regarding symptoms and comorbidities were observed between those with serum cotinine ≤15 ng/mL and those with values >15 ng/mL.
- A cut-off of serum cotinine equal with 9.765 proved a sensibility of 80% and a specificity of 75% as a biomarker for neurectomy among smokers with CLI (see Table 1).

Table 1. Serum cotinine as biomarker for neurectomy or disarticulation among CLI patients: ROC analysis

	AUC [95%CI]	p-value	Serum cotinine cut-off (ng/mL)	Sensibility (%)	Specificity (%)
Neurectomy					
Whole sample (positive: n=12)	0.646 [0.457-0.852]	0.119	9.765	0.7742	0.7742
Smokers (positive: n=10)	0.723 [0.531-0.916]	0.038	9.765	0.8000	0.7500
Disarticulation					
Whole sample (positive: n=7)	0.651 [0.423-0.879]	0.211	23.045	0.7143	0.7778
Smokers (positive: n=7)	0.622 [0.390-0.854]	0.318	23.045	0.7143	0.7419

CONCLUSION

- This study showed that values of serum cotinine higher than 15ng/mL are observed among subjects who smoke on median 22.5 cigarettes per day.
- Among smokers with critical limb ischemia, serum cotinine at a cut-off equal with 9.765 ng/mL could be a biomarker for neurectomy.

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