Use of leukotrienes and thromboxanes as new prognostic biomarker of recurring restenosis after endovascular treatment in patients with lower limb ischemia.

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Introduction

Percutaneous transluminal angioplasty (PTA) is less successful in patients with recurrent restenosis. Even though the role of eicosanoids in atherosclerosis is well-known, their influence on restenosis after endovascular treatment has not been studied yet. We, therefore, wanted to establish prognostic features of urinary leukotrienes E4 (uLTE4)* and thromboxane B2 (uTXB2)* in occurrence of restenosis.

Results

1) Preoperative uLTE4 level does not influence the frequency of postoperative complications.
2) Preoperative uTXB2 levels correlated well with the composite endpoint of death, myocardial infarction and stroke.
3) The levels of uLTE4 were significantly higher in group with restenosis than without in all follow-up meetings. (Fig.1)
4) Increased 1-month uLTE4 in patients with restenosis on 3-month follow-up (Fig.2)
5) Increased 3-month uLTE4 in patients with restenosis on 6-month follow-up (Fig.3)

Inclusion criteria

- Lower limb ischemia (Rutherford 3-4)
- Endovascular treatment
- Not taking anti-leukotriene drug
- No leukotriene rising factors:
  - Infection up to 30 days
  - Asthma
  - Severe kidney disease
  - Neoplasm
- Signed consent

Conclusions

1) Increased level of uLTE4 correlates with occurrence of restenosis in patients with PAD after PTA.
2) Rise of leukotrienes can be a predictor of the restenosis in next follow up months.
3) The results of our study let us believe, that the level of uLTE4 in urine may become the significant marker of future prognosis of patients after PTA.

* Excretion of uLTE4 and uTXB2 was measured in urine samples by high-performance liquid chromatography-mass spectrometry.