# INFLUENCE OF TGF-β AND ET-1ON ARTERIOVENOUS FISTULA THROMBOSIS IN CHRONIC HEMODIALYSIS PATIENTS

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**Introduction and objectives**: After arteriovenous fistula (AVF) creation, impaired endothelial cells release series of cytokines that promote inflammation, angiogenesis and proliferation, which results in neointimal hyperplasia and AVF failure. The aim of this study was to analyze influence of serum concentrations of Transforming growth factor beta (TGF-β) and Endothelin-1 (ET1) on of AVF thrombosis during 18 months follow-up period.

**Methods**: Study included 98 patients with AVF as vascular access who were treated by chronic hemodialysis (HD) three times per week for more than six months. Serum concentration of TGF-β and ET-1 were analyzed before middle hemodialysis in a week using ELISA method. Thereafter, the appearance of AVF thrombosis was followed in the next 18 months. Other relevant data were obtained from the medical records.

**Results**:

Table 1. Patients characteristics at the study start

| | No, % |
|---|---|
| Mean age, years, X±SD | 62.4±12.7 |
| Gender, M | 58 (59%) |
| HD vintage, months, X±SD | 343±82 |
| AVF as the first vascular access | 62 (63%) |
| Previous usage of current vascular access, months, X±SD | 63±68 |

After 18 months follow-up period

Thrombosis of AVF appeared in19 patients (19.3%)

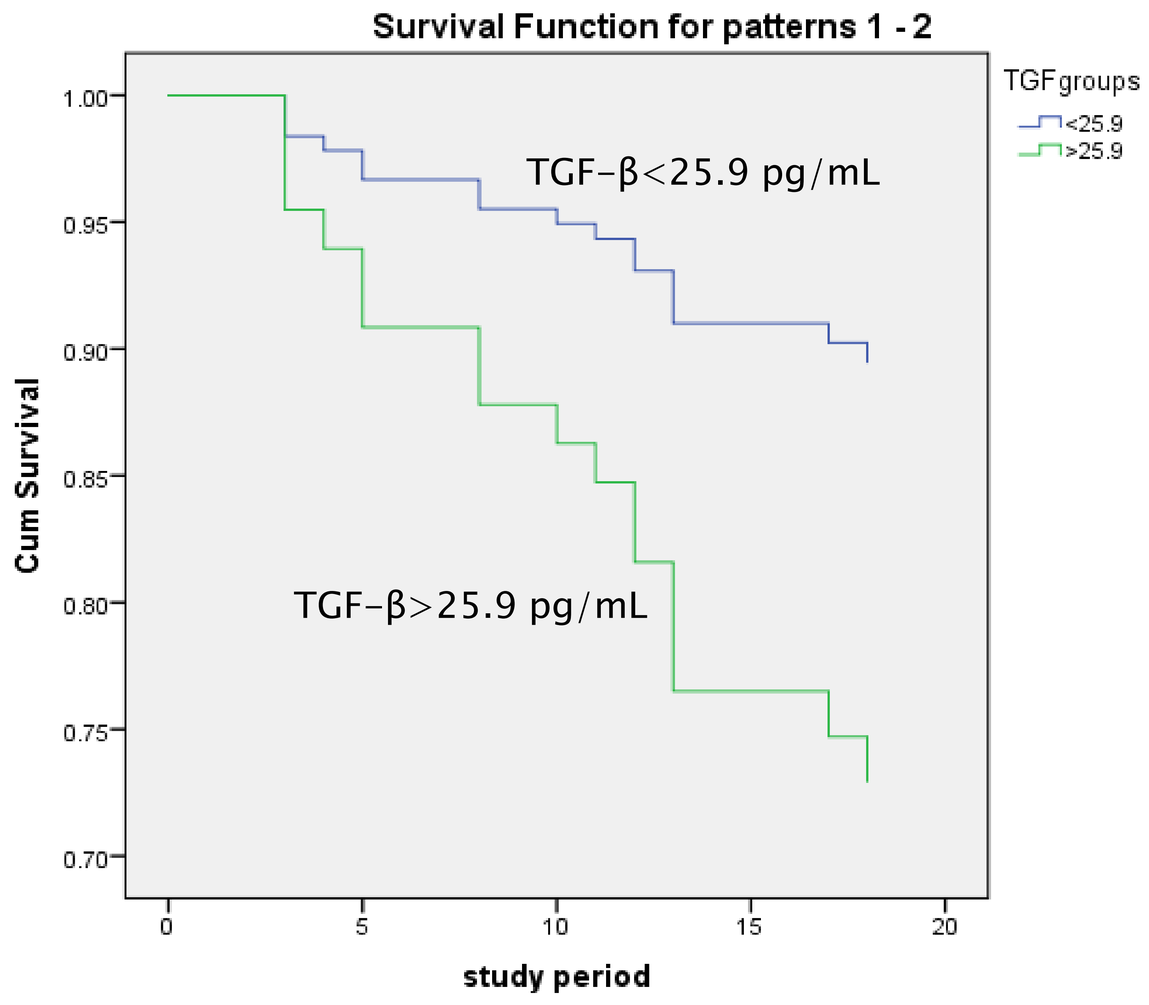
Table 2. TGF-β and ET-1 serum concentrations Among patients with and w/o AVF thrombosis

| | With AVF thrombosis | W/o AVF thrombosis | p |
|---|---|---|---|
| ET1 (pmol/L) | 0.18±0.11 | 0.22±0.12 | 0.247 |
| TGF-β (pg/mL) | 33.9±31.3 | 31.4±29.0 | 0.757 |

Cut-off point for TGF- β was 25.9 pg/ml (ROC analysis: specificity 58.8%, sensitivity 56.9%, AUC 0.531). For survival analysis this cut-off value was used.

After adjustments for basic demographical data, Cox proportional analysis revealed that patients with TGF-β over 25.9 pg/ml have hazard rate (HR) of 2.839 (95% confidence interval (CI) 0.928-8.684; p=0.067) for developing AVF thrombosis (Figure 1).

Figure 1. Cox proportional analysis




Conclusion: Although without statistical significance, patients with serum TGF- β over 25.9 pg/ml have greater risk for developing AVF thrombosis. Further investigations are needed to confirm the role of particular cytokines on AVF longevity.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