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TGF-β1 and Serpine 1 expression changes in traumatic deep vein thrombosis

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ABSTRACT. The objective of this study was to investigate the expression changes of transforming growth factor β1 (*TGF-β1*) and Serpine 1 in rats with traumatic deep vein thrombosis (DVT). In total, 60 male Sprague Dawley rats were divided into model (N = 50) and control groups (Group A, N = 10). From the model group, 10 rats were randomly selected after modeling as the pre-thrombosis group (Group B, N = 10), and the remaining 40 rats in the model group were divided into the thrombosis (Group C) and no thrombosis groups (Group D) depending on whether DVT was apparent at 25 h after modeling. All rats were dissected and the total RNAs of the femoral veins were extracted. *TGF-β1* and Serpine 1 expression was detected by microarray and polymerase chain reaction (PCR) analyses, and the related signal pathways were analyzed using bioinformatic analysis. Of the 40 rats, DVT was evident in 23, yielding an incidence rate of 57.50%. *TGF-β1* and Serpine 1 expression increased significantly at 2.5 h after modeling, while DVT began to form at 25 h after modeling. Both PCR and microarray analysis showed that *TGF-β1* and Serpine 1 expression levels were significantly higher in the thrombosis group than in the other groups ($P < 0.05$). Bioinformatic analysis indicated

that *TGF-β1* was an upstream regulatory gene of Serpine 1 and could induce Serpine 1 overexpression. Together, these results suggested that *TGF-β1* and Serpine 1 overexpression might play an important role in DVT formation and have predictive values.

Key words: Deep vein thrombosis; Serpine 1; *TGF-β1*; Fibrinolysis

