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DIFFERENTIAL EFFECTS OF VARIOUS TRANS FATTY ACIDS ISOMERS ON APOPTOSIS RATE OF HUMAN UMBILICAL VEIN ENDOTHELIAL CELL IN VITRO

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Objective To explore the effects of trans fatty acids (TFA) isomers on apoptosis rate of human umbilical vein endothelial cell (HUVECs) in vitro.

Method we obtained the original generation of HUVECs from umbilical cord. All cells were divided into six groups, including one control group and five TFA isomers groups, and cell count of every group was regulated under $0.5\sim1\times10^6$. In TFA isomers groups, cells were cultured in a medium containing 200 μmol/ml different five TFA isomers, namely trans palmitic acid (Δ9 T-C16:1), trans linoleic acid (Δ9, Δ12 T-C18:2), Δ6 trans oleic acid (Δ6 T-C18:1), Δ9 trans oleic acid (Δ9 T-C18:1), Δ11 trans oleic acid (Δ11 T-C18:1). After 24 h of incubation, cells were detected the apoptosis rate by using cytometry techniques.

Results Compared with the control group, the apoptosis rate of every TFA isomers groups were significantly higher. The apoptosis of T-C16:1, T-C18:2, Δ6 T-C18:1, Δ9 T-C18:1 and Δ11 T-C18:1 were, respectively 12.84±2.7%, 29.38±4.7%, 25.12±3.6%, 22.76±3.4% and 15.49±2.7%. In three different T-C18:1 isomers, the apoptosis of Δ6 T-C18:1 and Δ9 T-C18:1 groups were higher than Δ11 T-C18:1 group.

Conclusion Under the same TFA isomers concentrations, there are differences between apoptosis rate of HUVECs in vitro.