Expressions of endothelial cells adhesion molecules are significantly reduced in the presence of minute amount of tocotrienols

ABSTRACT

Comparative effects of palm tocotrienol rich fractions (TRF) and α–tocopherol on the expression of adhesion molecules by human umbilical vein endothelial cells (HUVECs) were investigated in the present study. Cell based ELISA technique using a monospecific, monoclonal antibodies was employed to measure expression of intracellular cell adhesion molecules–1 (ICAM–1) and vascular cell adhesion molecules–1 (VCAM–1). Primary HUVECs, cultured on a96 wells microtiter plate was incubated for 4 hours with different concentration (ng⁄ml) of TRF or α–tocopherol before subjected to inflammatory stimulation by incubating it with 2 ng⁄ml tumour necrosis factor-α (??F-α) and further incubated for 4 hours. MTS assay was carried out to ascertain the effects of the different dosages on the cells viability. VCAM–1 expression was significantly decreased when HUVECs were incubated with palm TRF between 10–50ng⁄ ml concentrations. Similar effects of the palm TRF were also observed on the expression of ICAM–1. The effect of α–tocopherol however was found to be less consistent. At 10ng⁄ml and 20ng⁄ml, α–tocopherol increased VCAM–1 expression. Higher concentration (30–50ng⁄ml) returned the expression to normal. On the other hand, ICAM–1 was significantly decreased when incubated with 10ng⁄ml of α–tocopherol but gradually increased with increased dosage of α–tocopherol. Our findings suggest that TRF are more potent adhesion molecules expression inhibitor compared to α–tocopherol in–vitro.

Keyword: Palm TRF; a–tocopherol; ICAM–1; VCAM–1; ELISA