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Basic Medical Sciences

Poster

Tumor Necrosis Factor-Related Apoptosis Inducing Ligand Stimulates Migration And Proliferation Of Vascular Smooth Muscle Cells

Madia Baizura Baharom¹, Nor Saadah Md. Azahri², Mohd. Ariffin Kaderi², Suhana Mamat²

¹*Department of Basic Medical Science, Kulliyah of Medicine, International Islamic University Malaysia*

²*Department of Biomedical Science, Kulliyah of Allied Health Sciences, International Islamic University Malaysia*

Presenter: Madia Baizura Baharom

Introduction: Tumor Necrosis Factor-Related Apoptosis (TRAIL) has the ability to inhibit angiogenesis through programmed cell death, in the same time able to promote pro-angiogenic activity. It seems that TRAIL has an opposite effects make its role in ischemic disease and its function in a normal cell is still unclear. This study determines the effect of TRAIL in Vascular Smooth Muscle Cells (VSMCs). **Materials and Methods:** In this study, 6 wells in vitro Scratch Assay were conducted for migration and Celltiter 96® Aqueous One Solution Cell Proliferation Assay (MTS) was performed for proliferation. In both assays, cells were serum arrested for 24, 48 and 72 hours, following stimulation with different concentration (1ng/ml, 20ng/ml, 50ng/ml and 100ng/ml) and different volume (20µL and 100µL) of TRAIL. PDGF-BB was used as positive control. Results of PDGF-BB and TRAIL were compared with untreated VSMC. **Results:** It Is demonstrated that 100µL of 50ng/ml TRAIL-induced VSMC shows significant ($p < 0.05$) higher migration rate percentage compared to untreated cells, included 100µL of 20ng/ml PDGF-BB after 48 hours. However, in proliferation assay, the lowest concentration of TRAIL (1ng/ml, 20µL) shows significantly higher proliferation rate compared to untreated cells after 24 hours ($p < 0.05$) meanwhile PDGF-BB (1ng/ml, 20µL) indicates significant higher proliferation after 48 hours. **Conclusion:** This study demonstrates that TRAIL promotes the VSMC migration and proliferation in vitro. This indicates that migration and proliferation of VSMC upon vascular injury from media to intima not only involves PDGF-BB, but also TRAIL. Therefore, TRAIL contributes to intimal thickening that can lead to the obstruction of the blood vessels and it is a hallmark of atherosclerosis.