# ENDOTHELIUM-INDEPENDENT EFFECT OF PINACIDIL ON SAPHENOUS VEIN OBTAINED FROM PATIENTS WITH/WITHOUT TYPE 2 DIABETES MELLITUS THROUGH VOLTAGE-GATED POTASSIUM CHANNELS

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Type 2 diabetes mellitus (T2DM) is one of the major risk factors for cardiovascular complications. Reduced relaxation of blood vessels from diabetic patients could be result of different expression and/or function of smooth muscle potassium (K) channels. Thus, the objective of our study was to investigate differences in the involvement of voltage-gated K ($K_v$) channels in the effect of pinacidil on human saphenous veins (HSV) obtained from patients with/without T2DM.
Rings of HSV from bypass surgery, without endothelium, were mounted in organ bath system and isometric tension was being recorded. The relaxation of HSV, precontracted with phenylephrine, was produced by pinacidil, a potassium channel opener.
Pinacidil produced concentration-dependent relaxation of HSV from patients with/without T2DM. 4-aminopiridine (4-AP, 1mM and 3mM), non-selective blocker of $K_v$ channels did not antagonize pinacidil effects on HSV from patients with T2DM. However, 4-AP antagonized pinacidil effects on HSV from patients without T2DM ($P < 0.05$, for both concentrations). Margatoxin, specific blocker of Kv1 channels did not antagonize pinacidil effects on HSV from patients with/without T2DM.
Pinacidil produces comparable relaxation of HSV in patients with/without T2DM. 4-AP-sensitive Kv channels are probably involved in pinacidil-induced relaxation of HSV from patients without T2DM. However, in patients with T2DM, 4-AP-sensitive Kv channels did not participate in pinacidil effect on HSV. According to the results obtained with margatoxin, it seems that Kv1 channels are not included in pinacidil effects on HSV of patients with/without T2DM. It seems, that presence of T2DM influences strongly function and/or expression of vascular Kv channels.

**Keywords**: potassium channels, saphenous vein, type 2 diabetes mellitus, pinacidil, bypass grafts