



P70 Effects of Different Vitamin D Status on Mechanical, Pharmacological and Histological Characteristics of Coronary Arterioles in Male Rat Model

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ABSTRACT

Objectives: The cardiovascular/CV risk is higher in males. To know better these increased risks, our aim was to investigate the effects of different vitamin D/VD status on mechanical, pharmacological and histological characteristics of coronary arterioles in male rat model.

Methods: In male Wistar-rats we induced different VD status: "Group C" got 1000 IU VD containing rat chow and VD-supplementation, "Group D-" got less, than 5 IU VD containing rat chow to model the VD deficient/VDD status. At the end of the experiment we prepared intramural, small coronary arteriole segments from the LAD. With microangiometer, we measured the inner and outer diameters, TXA2-vasoconstriction, adenosine-vasorelaxation, and the passive diameter. Histopathological examinations were taken.

Results: Inner and outer radius were significantly decreased, wall thickness and wall-thickness/lumen diameter ratio were significantly increased in group D-, while the wall-cross-sectional area and the intima-media area% were not different. Tangential wall stress and incremental elastic modulus were significantly reduced in group D-. TXA2-vasoconstriction significantly lower in group D-. In the point of adenosine-induced vasorelaxation, in group D-only the highest dose of adenosine could relax the vessels. eNOS-expression was not differ, SMA-expression was significantly decreased in group D-.

Conclusion: The characteristics of the VDD group's coronary arterioles had changed. The results refer to development of inner eutrophic remodelling and changed wall structure. These changes can cause increased vascular resistance and diminished coronary perfusion which as a result lead to the deterioration of the heart's blood supply. These mechanisms can contribute to the increased incidence of the CV diseases in VDD.

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