

Effects of vitamin D and paricalcitol on murine cardiomyocytes

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Severe alterations of Calcium-Phosphate metabolism are frequently associated with chronic kidney diseases. High levels of Phosphate and low levels of vitamin D in subjects affected by chronic kidney disease are, in many cases, correlated with high risk of mortality. For this reason, administration of vitamin D represents the elective treatment. Nevertheless, vitamin D in itself induces a variety of side effects which in many cases can be avoided by the administration of vitamin D analogues. In this study we treated murine cardiomyocytes with different concentrations of vitamin D and paricalcitol (one of its analogues) for 48 hours. Cell morphology, cell proliferation, intracellular Calcium deposition, and cAMP level were investigated respectively by light microscopy, immunoenzymatic assay and Von Kossa staining. Results show that, in comparison to paricalcitol, vitamin D induces stronger side effects on cardiomyocytes (such as cell proliferation, morphological changes, activation of signal transduction pathways). From our data emerges that paricalcitol induces less stressful effects on murine cardiomyocytes in comparison to what observed with vitamin D treatment.

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