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Poster Sessions

Daptomycin-induced necrotic cell death in skeletal muscle cells

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BACKGROUND: Daptomycin(DAP)-associated myopathy or creatine phosphokinase (CPK) elevation are known adverse drug effect. Although a few studies have suggested the possibility of correlation between skeletal muscle toxicity (such as rhabdomyolysis) and plasma DAP level (trough concentration), little has known on the direct cytotoxicity of DAP to skeletal muscle cells. **METHODS:** We determined the trough DAP level in patient's plasma and reviewed their laboratory data. Direct cell toxicity assays (caspase-3/7 activity, MTT assay) were examined using myoblast RD cells. **RESULTS:** In the patients who presented CPK elevation, median DAP trough level was significantly high compared with that in patients did not present CPK elevation. In *in vitro* assays, DAP significantly decreased myoblast viability, due to necrosis in myoblast RD cells. Meanwhile, DAP inhibited apoptosis only in the high concentration (1000 mg/L). **CONCLUSIONS:** These findings from clinical and *in vitro* studies strongly support that DAP has a direct skeletal muscle cell toxicity.