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## PHARMACEUTICAL BIOTECHNOLOGY

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**Cardiac troponins and their predictive value of myocardial injury on model of chronic anthracycline cardiomyopathy****Michaela Adamcova**

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Cardiac troponins (cTn) seem to be more sensitive for the detection of anthracycline cardiotoxicity than the currently recommended method of monitoring LV systolic function. However, the optimal timing of blood sampling remains unknown. Hence, the aims of the present study were to determine the diagnostic window for cTns during the development of chronic anthracycline cardiotoxicity and to evaluate their predictive value. Cardiotoxicity was induced in rabbits with daunorubicin (3 mg/kg, weekly, for 8 weeks). Blood samples were collected 2-168 hrs after 1<sup>st</sup>, 5<sup>th</sup> and 8<sup>th</sup> drug administration, and concentrations of cTns were determined using highly sensitive assays: hs cTnT (Roche) and hs cTnI (Abbott). The plasma levels of cTns progressively increased with the rising number of chemotherapy cycles. While only a mild non-significant increase in both cTn levels occurred after the 1<sup>st</sup> daunorubicin dose, a significant rise was observed after the 5<sup>th</sup> and 8<sup>th</sup> administrations. Two hours after these administrations, a significant increase occurred with a peak between 4-6 hrs and a decline until 24 hrs. While greater variability of cTn levels was observed around the peak concentrations, the values did not correspond well with the severity of LV systolic dysfunction. Unlike AMI in cardiotoxicity, cTn elevations may be better associated with cumulative dose and AUC than cmax. Very strong correlation between dP/dtmax and AUCtotal5-10 (calculated from the 5th till the 10th week) for both cTnI and cTnT (R=-0.857, p<0.01 and R=-0.833, p<0.01; respectively) and LV FS (R=-0.810, p<0.01 and R=-0.833, p<0.01; respectively) were found.

**Biography**

Michaela Adamcova is an expert in cardiovascular toxicity markers. Her research activities have been focused mainly on cardiac troponins as translational markers for evaluation of cardiotoxic and potentially cardioprotective effects of new drugs in oncology. She has published 84 scientific papers, including several invited reviews, e.g. "Troponin as a marker of myocardial damage in drug-induced cardiotoxicity" for the journal *Expert Opinion on Drug Safety*, commentary "Troponins in children and neonates" for *Acta Paediatrica* and "Cardiac troponins – translational biomarkers in cardiology: Theory and practice of cardiac troponin high assays" for *BioFactors*.

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