

## Laboratory opportunities in detection and monitoring of chemotherapy-induced heart damage

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Well known fact is that several cancer chemotherapeutic adversely affect vascular system and the heart. Chemotherapeutic-associated cardiotoxicity might result as: cardiomyopathy due to reduction in the left ventricular ejection fraction, heart failure, ischemia, pericarditis, hypotension, arrhythmias, hypertension, effect on the coagulation system, atrial fibrillation, angioedema.

Key role of biochemistry laboratory in all oncological hospitals is either participation in assessment of cardiovascular status before applying antineoplastic therapy or follow-up during the therapy. Generally, most frequently used laboratory parameters are the results of direct action on the heart (troponin isoforms, B-type natriuretic peptide, myeloperoxidase), or indirect indicators consequences of damage to the heart (coagulation balance parameters, electrolyte and protein status, LDL/HDL modulation, inflammation status).

Our hospital is the largest highly specialized oncology institution in which more than 50% of breast tumors in Croatia are diagnosed, operated, treated and monitored.

Advances in breast cancer therapy have led to use of monoclonal antibodies which selectively bind the human epidermal growth factor receptor 2 protein (HER2). Several studies reported that incidence of cardiac dysfunction in women with breast cancer treated with trastuzumab has been higher than anticipated, especially when it is used in combination with other cardiotoxic chemotherapy. Clinical biochemists in the laboratory are taking part as equal segment of multidisciplinary team composed by surgeon, oncologist, anesthesiologist, radiotherapist, pharmacist, cytopathologist. Cardiotoxicity is becoming one of the most important complication of cancer therapy. Early recognition and identification of the patient with higher risk is the key strategy for reducing morbidity and mortality.

### Biography

Ljiljana Mayer has Graduated and postgraduated from medical biochemistry at the Faculty of Pharmacy & Biochemistry, University of Zagreb, Croatia. Master's degree: "Glutathione peroxidase and superoxide dismutase at patients with hyperthyroidism" (2002); Ph.D. "Brain natriuretic peptide and risk factors of cardiovascular disorders at hemodialysed patients" (2009). Since 2011 I lead clinical unit for medical biochemistry in oncology, Clinical Institute of Chemistry, University Hospital Center "Sestre milosrdnice". Field of interest: oxidative stress, Graves disease, natriuretic peptide, intraoperative PTH measurement.

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