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An *in vivo* biochemical approach to study the delivery enhancement of vitamin C and E loaded chitosan nanoparticles against cisplatin mediated reproductive toxicity in male Sprague Dawley rats

Humaira Rehman Jarral, Tariq Mahmmod, Ghazala Shaheen, Qurat Ul Ain, Imdad Ullah, Hizbullah and Sarwat Jahan
Quaid-i-Azam University, Pakistan

Present study was designed to investigate the potential of chitosan-based nanoencapsulation as a tool for delivering vitamin C and E to organisms. Vitamin C and E loaded chitosan nanoparticles (NPs) were made by ionic gelation and the particles were characterized. In present study, the biochemical mechanisms underlying possible protective effect of vitamin C and E loaded chitosan nano-particles on reproductive toxicity produce by cisplatin (CP) was examined. Twenty five male rats were divided into five groups: i) Control group received 0.9% saline, ii) Injection of CP (2 mg/kg) three days per week (i.p.), iii) Vitamin C and E (100 mg/kg) orally with CP (2 mg/kg), iv) Vitamin C and E loaded chitosan nano-particles (100 mg/kg) and, v) 50 mg/kg for 30 days along with CP (2 mg/kg). Animals were sacrificed and reproductive organs were removed for daily sperm production (DSP), biochemical analysis and comet assay. CP treatment resulted in a decrease in DSP, efficiency of sperm production, total protein concentration and level of antioxidants while increase in values of TBARS and ROS. CP exposed rats showed a significant damage to DNA. Vitamin C and E administration retreated some results but vitamin C and E loaded chitosan nano-particles resulted in significant reversal of above toxicities and damages. In conclusion, the nano-vitamin C and E may be useful to prevent CP-induced reproductive toxicity through its antioxidant potential.

s_humara23@hotmail.com

The differences between mean level of liver enzymes and platelet in early onset and late onset pre-eclampsia at Dr. M Djamil Padang Hospital

Ismi Mulya Afti
Andalas University, Indonesia

Introduction & Aim: Pre-eclampsia is a leading cause of pregnancy-related morbidity and mortality maternal and neonatal in the world. The distinction based on clinical onset is made by early onset and late onset pre-eclampsia. Early onset and late onset pre-eclampsia has cause different etiology and pathophysiology. The theory of endothelial dysfunction in pre-eclampsia may explain the occurrence of hypertension that will reduce blood flow to the liver causing damage to liver cells and microangiopathic hemolysis characterized by elevated levels of the liver enzymes such as serum glutamic oxaloacetic transaminase (SGOT), serum glutamic pyruvic transaminase (SGPT), and lactate dehydrogenase (LDH). In addition, endothelial dysfunction also causes activation and aggregation of platelets and the resulting decrease platelets in the bloodstream. This study aimed to determine the different liver enzymes level and trombosit between early onset and late onset preeclampsia.

Method: This is an analytic study by taking secondary data from medical record of 110 pregnant women with preeclampsia in Dr. M Djamil Hospital. The sampling method is simple random sampling. Statistical analysis was done by SPSS program 16th version. Independent t- test undergo the mean difference.

Results: The analysis showed SGOT and SGPT where $p\text{-value} > 0.05$. This means that there are no significant statistic relationship between early onset and late onset pre-eclampsia with SGOT with $p=0.455$, SGPT with $p=0.357$. The analysis showed LDH and trombosit where $p\text{-value} < 0.05$. This means that there is significant statistic relationship between early onset and late onset preeclampsia with LDH with $p=0.003$ and platelet with $p<0.001$.

Conclusion: This study concludes that the mean level of LDH is significantly higher and the mean level of platelet is significantly lower in early onset pre-eclampsia. The mean levels of SGOT, SGPT are also higher in early onset preeclampsia.

ismimulyaifti@gmail.com