Novel method of patent ductus arteriosus closure in preterm neonates with nano-Ibuprofen eluting balloon

**Background:** Patent ductus arteriosus (PDA) occurs frequently in preterm babies (14%). Treating PDA with oral ibuprofen is common. However large PDAs with pump failure, refractive to medical therapy undergo either surgical ligation or device closure, which carry significant inherent morbidity.

**Aim:** Aim of this study is to evaluate effect of drug eluting balloons coated with inorganic nanoparticles of ibuprofen in rabbits, initially and then in preterm neonates.

**Methods:** In this proposed prospective study, PDA in rabbits is treatment with drug eluting 3X10 mm coronary balloon coated with inorganic nanoparticles of Ibuprofen. Through the femoral vein 4F catheter is passed via the inferior vena cava, right atrium, right ventricle and pulmonary artery. Then PDA is crossed with a Terumo guide wire under fluoroscopy, the drug eluting balloon is positioned in PDA. The balloon is inflated for 3 min to release the ibuprofen nanoparticles. Slowly, the balloon is deflated over 3 min to demonstrate duct closure by echocardiography. The balloon and guide wire are removed. Serial echocardiograms are performed to assess the efficacy after 6, 12, 24 and 48 hours. The primary outcomes are noted, along with survival without major neonatal morbidity. Finally, histopathological studies of ductal tissue are done.

**Results:** The proportion of PDA closure with drug eluting balloon versus oral ibuprofen will be interrogated. The difference between two groups and the P value will be calculated using SPSS-Prism t test.

**Conclusions:** This novel study of balloon coated with inorganic nanoparticles of ibuprofen in rabbits could be path breaking.

**Biography**
I B Vijayalakshmi has 86 publications to her credit and edited four cardiology books. She has also received 34 gold medals for her work.

dcvj@yahoo.com

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