INTRODUCTION

The ductus arteriosus is derived from the sixth aortic arch and normally extends from the main or left pulmonary artery to the descending aorta just distal to the origin of the left subclavian artery. Normally in full term neonates, it closes within several days of birth ***(Ewert, 2005).***

Functional closure of the ductus arteriosus occurs by constriction of the medial smooth muscle in the ductus within 10 to 15 hours after birth. Anatomic closure is completed by two to three weeks of age by permanent changes in the endothelium and subintimal layers of the ductus ***(Carey, 2003).***

Oxygen, prostaglandins E_2 levels and maturity of the newborn are important factors in closure of the ductus ***(Ivey and Srivastava, 2006).***

A postnatal increase in oxygen saturation of the systemic circulation (from pO_2 of 25 mmHg in utero to 50 mmHg after lung expansion is the strongest stimulus for constriction of the ductal smooth muscle which leads to closure of the ductus ***(Riggst et al., 2000).***

The responsiveness of the ductal smooth muscle to oxygen is related to gestationl age of the newborn. Important problems that premature infants may face is that the ductus arteriosus is more likely to remain open as preterm infant's ductal smooth muscle layer does not have a fully developed constrictor response to oxygen .Clinical evidence of patent

ductus arteriosus (PDA) appears approximately in 31% in infants whose birth weight between 500-1500 gm ***(Poon, 2007).***

Indomethacin and more recently ibuprofen have been used to treat hemodynamically significant PDA in preterm infants. Both are cyclo-oxygenase blockers, but seem to have different influence on regional circulation ***(Lago et al., 2002).***

Administration of three doses of ibuprofen intravenously within 3 hours after birth in preterm neonates reduced the incidence of PDA without causing notably early adverse reactions ***(Varvarigou et al., 1996).***

Adverse events associated with both drugs include bleeding, skin lesion as irritation, hypoglycemia, adrenal insufficiency and respiratory failure. Intraventricular hemorrhage (IVH) and renal insufficiency have been reported ***(Poon, 2007).***