SUMMARY

PDA is an essential part of the fetal circulation. Functional closure occurs at 3 days postnatally and anatomical closure occurs at around 3 months. It usually remains open in preterm infants and closure is then dependent upon certain factors.

Failure of the ductus arteriosus to close within 48-96 hours of postnatal age results in left to right shunts across the ductus and over loading of the pulmonary circulation. This may lead to increased risk for intraventricular hemorrhage, necrotizing enterocolitis, deterioration in the respiratory status and failure to thrive.

The present study was designed to evaluate the safety and efficacy of intravenous indomethacin and oral ibuprofen in treatment of PDA in very low birth weight neonates.

The current study was conducted on 40 very low birth weight preterm neonates delivered in El Mabara Hospital in El Mahalla El Kobra and admitted in NICU in the same hospital. Neonates were diagnosed as having PDA.

They were subjected to full history taking & complete clinical assessment together with CBC, CRP, serum creatinine, blood urea nitrogen, prothrombin time, partial thromboplastin time, transcranial and abdominal U/S.

Diagnosis of PDA was done clinically &confirmed by 2D Mode Color Doppler echocardiography.

They were divided into two groups:

Group I: It included 20 very low birth weight preterm neonates with PDA; this group is divided into two subgroups:

A-10 preterm neonate treated by intravenous indomethacin (0.2 mg/kg/24hrs) for three days in the first 2-7 days after birth.

B-10 preterm neonate treated by intravenous indomethacin (0.2 mg/kg/24hrs) for three days in the first 8-35 days after birth.

The studied neonates were 12 females & 8 males, their mean gestational age 30.7±2.5wks, their mean weights 1049±128 grams,13 of them were delivered by caesarean section while 7 of them were delivered vaginally.

Group II: It included 20 very low birth weight preterm neonates with PDA; this group is divided into two subgroups:

A- 10 preterm neonate treated by oral ibuprofen (10 mg/kg/day for the first day then 5 mg/kg/day for two others days) in the first 2-7 days after birth.

B- 10 preterm neonate treated by oral ibuprofen (10 mg/kg/day for the first day then 5 mg/kg/day for two others days) from 8 to 35 days after birth.

The studied neonates were 14 females & 6 males, their mean gestational age 30.7±2.5wks, their mean weights 1146±260 grams, 12

of them were delivered by caesarean section while 8 of them were delivered vaginally.

The current study showed that there was no significant difference between the two groups in base- line clinical, laboratory and echocardiographic characteristics before starting treatment. There was no significant difference in gestational age, birth weight, sex, mode of delivery, respiratory status, total fluid intake and urine output.

There was no significant difference in platelet count, creatinine level, blood urea nitrogen, prothrombin time and partial thromboplastin time.

There was no significant difference in severity of shunting and size of duct.

The study revealed similar efficacy of both drugs in closure of PDA within the 2-7 days after birth only while oral ibuprofen has limited role in closure of PDA after age of 7 days in contrary to IV indomethacin which retains its efficacy after age of 7 days.

PDA was closed in 8 of 10 (80%) in premature infants given intravenous indomethacin from 2-7 days after birth and 7 of 10 (70%) from 8-35 days after birth.

PDA was closed in 8 of 10 (80%) in premature infants given oral ibuprofen from 2-7 days after birth and 2 of 10 (20%) from 8-35 days after birth.

In indomethacin group, a highly significant decrease in urine output, decrease in platelet count, increase in creatinine level and blood urea nitrogen was found after treatment when compared to those before treatment.

In ibuprofen group, no significant decrease in urine output or platelet count and no significant increase in blood urea nitrogen or creatinine level were found after treatment when compared to those before treatment.

On comparing preterm infants treated with intravenous indomethacin to those treated with oral ibuprofen a highly significant decrease in urine output together with significant increase in serum creatinine was found in the former than the latter.

There was a significant increased frequency of gastrointestinal bleeding in infants treated with intravenous indomethacin when compared to infants treated with oral ibuprofen. One preterm infant had bowel perforation in indomethacin group and none in the ibuprofen group.

The current study showed no statistically significant difference between two groups as regards bronchopulmonary dysplasia or mortality rate.