Complications in the treatment of Polyhydramnios

- Amniodrainage has been used for more than three decades to relieve maternal discomfort in cases of polyhydramnios and to prevent the complications associated with the resulting increased intrauterine pressure, such as preterm labor, premature rupture of membranes (PROM), fetal hypoxia and acidemia .

Amnioreduction

- Complications occur in 1 to 3 percent of procedures and include preterm labor, prelabor rupture of membranes (PROM), abruptio placentae, intra-amniotic infection, and hypoproteinemia.

- As preterm labor and PROM are natural complications of polyhydramnios, it is difficult to assess if such complications may also have occurred in spite of the procedure.

- The most common complication is **PROM**
- The another most common complication seems to be **placental abruption**.
- It has also been suggested that sudden loss of amniotic fluid could result in placental abruption
- The authors recommended restricting the volume removal to a maximum of 5000 mL per procedure.

- **Chorioamnionitis** is probably a rare event and it should not be more common than it is in standard amniocenteses even if the procedure involves leaving the needle inside the uterus for sometimes more than 30 min.

Procedure-related complications

- Placental abruption
- Premature rupture of membranes
- Chorioamnionitis
- Fetal bradycardia requiring emergency delivery
- Preterm delivery within 48 h of amniodrainage

- In conclusion, amniodrainage using a vacuum wound-drainage system in the treatment of polyhydramnios can be considered a safe procedure with a low complication rate, which might further be reduced if certain technical factors are taken into consideration.

Prostaglandin synthetase inhibitors

- Maternal administration of prostaglandin synthetase inhibitors reduces AFV in pregnancies with normal or abnormal AFV at baseline.
- These drugs may stimulate fetal secretion of arginine vasopressin and facilitate vasopressin-induced renal antidiuretic responses and reduced renal blood flow, thereby reducing fetal urine flow. They also may impair production or enhance reabsorption of lung liquid .

Indomethacin

- Maternal side effects, such as nausea, esophageal reflux, gastritis, and emesis; the prevalence of side effects in this population is 4 percent.
- Platelet dysfunction may occur. Alterations in maternal cardiovascular physiology are minimal .

- Development of renal failure after indomethacin administration, indicate that treatment with indomethacin increases maternal peripheral vascular resistance, a finding consistent with the theory that agents such as **prostacyclin** exert a tonic vasodilatory effect that could be blocked by indomethacin.
- All parameters returned to normality after indomethacin withdrawal.

Fetal side effects

- – The primary fetal concerns with use of indomethacin and other COX inhibitors (eg, sulindac, nimesulide) are constriction of the ductus arteriosus and oligohydramnios.
- One important role of prostaglandins during fetal life is to maintain the patency of the ductus arteriosus. Indomethacin, therefore, has the potential to cause ductal constriction.

Constriction of the ductus arteriosus

- — Premature narrowing or closure of the ductus arteriosus can lead to pulmonary hypertension and tricuspid regurgitation in the fetus.
- Several cases of premature ductal constriction have been reported in pregnancies in which the duration of indomethacin exposure exceeded 48 hours ; however, this complication has not occurred in more than 500 fetuses exposed to shorter durations of indomethacin treatment.

- Ductal constriction appears to depend upon both gestational age and duration of exposure. It has been described at gestations as early as 24 weeks, but is most common after 31 to 32 weeks .
- It has been calculated that the risk of ductal constriction is 5% between 26 and 27 weeks gestation but increases to nearly 50% by 32 weeks.
- Therefore, indomethacin is **not** recommended after 32 weeks of gestation.

- Before 32 weeks, fetal echocardiographic evaluation is useful for monitoring ductal effects if the duration of therapy exceeds 48 hours.
- Recent data suggest that fetal ductus constriction mediated by indomethacin is related to gestational age, and Thus, it has been suggested that **fetal echocardiograms** should be done in the first 24 h after the initiation of indomethacin and then with the interval of 2 -7 days.

- Sonographic signs of ductal narrowing include tricuspid regurgitation and right ventricular dysfunction.
- As in the above mentioned cases, this alteration resolved spontaneuosly after indomethacin withdrawal.

Oligohydramnios

- — Maternal administration of indomethacin and other COX inhibitors reduces fetal urine output and, in turn, amniotic fluid volume, leading to oligohydramnios. The mechanism is enhanced vasopressin action and reduced renal blood flow .

Oligohydramnios

- **Oligohydramnios** associated with nonsteroidal anti-inflammatory drug treatment has previously been reported in animal and human studies .
- Oligohydramnios was reversible with cessation of the drug.

Neonatal effects

- Neonatal complications linked with in utero indomethacin exposure include bronchopulmonary dysplasia, necrotizing enterocolitis, periventricular leukomalacia, and intraventricular hemorrhage . These associations are controversial.
- Whether use of indomethacin has long-term developmental effects is also unclear.

Monitoring

- If indomethacin is continued for longer than 48 hours, sonographic evaluation for oligohydramnios and narrowing of the fetal ductus arteriosus is warranted at least weekly
- Evidence of oligohydramnios or ductal constriction should prompt discontinuation of this therapy.

- The use of indomethacin immediately before delivery seems to increase the risks to the newborn; thus, postponement of delivery for at least one week at the end of treatment could prevent the neonatal complications associated with prenatal exposure to indomethacin.

- In summary, our report clearly shows that there are definite risks for both mother and fetus when indomethacin is used to treat polyhydramnios.
- Thus, the drug should be used cautiously in cases of polhydramnios. Its effect on the ductus arteriosus must be monitored. AFI should be estimated frequently in order to avoid oligohydramnios.

THE END!

Thanks for your attention.