

Amnioreduction for treatment of severe polyhydramnios

Giovanni Piantelli, Laura Bedocchi, Ottavia Cavicchioni, Carla Verrotti, Davide Cavallotti, Stefania Fieni, Dandolo Gramellini

Department of Obstetrics and Gynecology, University of Parma

Abstract. Between January 2000 and March 2003 we studied the pregnancies complicated by polyhydramnios in 10 patients. The objective was that of evaluating the efficacy of amnioreduction in improving the principal complications given by polyhydramnios such as maternal dyspnea and uterine activity. Our results showed that this procedure resolve maternal symptoms in all the cases but there is no significant reduction in uterine activity.

Key words: Polyhydramnios, amnioreduction, amniotic fluid index, ultrasound

Introduction

Polyhydramnios generally complicates an overall of 0.4 to 1.9% pregnancies (1). The presence of increased amniotic fluid is associated with maternal diabetes (5.8%) and various congenital abnormalities (8.4%) (2); it increases the risk of preterm labour, premature rupture of membranes and unexplained perinatal deaths (4.8%). The increase of amniotic fluid volume can also cause maternal symptoms, such as dyspnea.

Over the last twenty years various objective methods for the diagnosis of polyhydramnios have been used.

Polyhydramnios was initially defined (3) as the largest vertical pocket (LVP) >8 cm; but more recently measurement of a four-quadrant amniotic fluid index (AFI) >25 cm, described by Phelan (4), which is more accurate for the determination of the amniotic fluid volume is used.

Therapeutic amniocentesis (amnioreduction) was initially employed to solve polyhydramnios of the recipient twin in the twin-twin transfusion syndrome (5); thereafter it was proposed also for singleton pregnancies to reduce maternal symptoms, given by overdistension of the uterus in severe and acute hydramnios (6).

Aim of the study

The objective of this study was to evaluate if amnioreduction is effective in treatment of signs and symptoms of severe and acute polyhydramnios in singleton pregnancies and eventually its association with adverse perinatal outcome. It also appeared to be efficient in the prevention of preterm delivery.

Methods

In the Department of Obstetrics and Gynecology of the University of Parma between January 2000 and March 2003 we prospectively studied 10 singleton pregnancies complicated with polyhydramnios. Diagnosis of polyhydramnios was established when Amniotic Fluid Index (AFI) was more than 25 cm, during the second or third trimester of pregnancy.

All the pregnancies were studied with an ultrasound scan to identify the presence of major fetal abnormalities and to quantify the AFI at least a day before the procedure. When hydramnios was diagnosed, all women had repeat indirect Coombs test, screening for maternal diabetes and TORCH test. We proposed karyotyping only when polyhydramnios was as-

sociated with ultrasound finding of a chromosomal abnormality.

The indications for amnioreduction were presence of subjective maternal symptoms (dyspnea) or regular uterine activity confirmed with tocography (more than 4 contractions in a period of 20 minutes). The patients who underwent amnioreduction all had an acute and severe increase of the amniotic fluid volume before the procedure.

Amnioreduction was performed, under continue ultrasound control, using a needle of 15 cm x 20 G. We selected the largest pocket of amniotic fluid, avoiding the umbilical cord (using Color flow) and the placenta. The amniotic fluid was removed using a 50 ml syringe or a vacuum bottle system at a velocity rate of 50-60 ml/min. At the end of the procedure we reached a largest vertical pocket of less than 8 cm.

Maternal symptoms before and following the procedure were evaluated and statistically analysed using the Mc Nemar test.

Results

Our study included 10 singleton pregnancies with a mean gestational age at diagnosis of polyhydramnios of 28.2 weeks (range 23-34 wks). Fifty percent of our women were nulliparous and the other fifty percent were pluriparous. In all our patients we repeated TORCH-test and indirect Coombs-test, though they all resulted negative; screening for maternal diabetes was also negative.

Six patients underwent one amnioreduction, while four of them underwent more than one procedure (2 or 3 amnioreductions) giving a total of fifteen procedures. In the latter, the procedure was repeated, due to increase in the amniotic fluid quantities and in particular due to maternal symptoms. The mean gestational age at time of the procedure was 30 weeks (range 23-33 wks). An average of 1900 ml of amniotic fluid (7) (range 900-3000 ml) was removed during every procedure at a mean rate of 50-60 ml/min going from a mean AFI of 363 mm (SD 45.7 mm) to a mean AFI of 249 mm (SD 61.2 mm) (8).

Polyhydramnios was idiopathic in 8/10 cases and secondary to fetal abnormality in 2/10 (one tracheal

atresia and one duodenal atresia, both confirmed postnatally).

From the analysis of the fifteen procedures carried out, we found that 4 were due to dyspnea, 8 cases due to contractions while in 3 cases both symptoms were found. When the two symptoms were considered separately, with comparison of their incidences before and after amnioreduction, we observed a 100% resolution in dyspnea (7/7 vs 0/7 $p=0.013$), while resolution of the uterine contractions was observed in 64% of the cases (11/11 vs 7/11 $p=0.48$).

We gained a median of 18 days of pregnancy with each procedure (range 0-42 days), reaching a mean gestational age at delivery of 32 weeks (range 23-37 wks).

Three complications were observed, all occurring after the first procedure: two cases of preterm delivery and one abruptio placentae. We had two neonatal deaths: one for tracheal atresia and one as a complication of the abruptio placentae.

Conclusions

Amnioreduction has been described in literature largely in twin-pregnancies but only few studies describe the procedure in singleton pregnancies. From our study, even though we had a small number of cases, we observed an improvement in maternal symptoms and a reduction in preterm delivery (average of 18 days with each procedure).

From the analysis of our data, amnioreduction seemed to reduce maternal symptoms in particular dyspnea, while reduction of the uterine contractions did not result statistically significant. The number of days gained therefore, (on average 18 days), cannot certainly be linked to the procedure and on the other hand, lack of a control group for comparison render the results obtained unreliable. Moreover, the most severe complication observed was abruptio placentae observed in one patient (10%), while an incidence of 0.5% has been reported literature (6).

Amnioreduction seems to give immediate results in reducing maternal symptoms though we were unable to demonstrate any long term benefits on neonatal outcome.

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Correspondence: Giovanni Piantelli, MD
Tel: 0039 0521 702436
Fax: 0039 0521 702542
E-mail: giovanni.piantelli@unipr.it