Amnioinfusion in the etiological diagnosis and therapeutics of oligohydramnios: 17 years of experience
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Objective
To review the maternal and fetal outcomes of all amnioinfusions performed for the diagnosis and treatment of oligohydramnios during pregnancy (excluding labor).

Methods
This is a retrospective study of 31 singleton pregnancies with oligohydramnios in the second and third trimesters which underwent transabdominal amnioinfusion between December/1997 and December/2014 in the Prenatal Diagnosis Center at the Hospital Garcia de Orta. The gestational age ranged from 15 weeks and 5 days to 32 weeks and 2 days (average 22 weeks). The initial amniotic fluid index ranged from 0 to 6.5 cm. The procedure was done only by trained professionals. Under ultrasound guidance, isotonic fluid, such as normal saline or Ringer’s lactate, is infused into the amniotic cavity via a 20 G needle inserted through the uterine wall. The volume infused ranged from 100 to 800cc (average 380cc). A genetic study was conducted in 29 cases (93.5%), performed after amniocentesis (26 cases) or cordocentesis (3 cases). In all cases, there was an exhaustive study of the fetal anatomy after the amnioinfusion. In this study the following parameters were evaluated: maternal characteristics (age, personal and obstetrical history), evolution of pregnancy, perinatal mortality and maternal complications. Histopathological examinations of the fetuses and placentas were also reviewed.

Results
The transabdominal amnioinfusion allowed the etiological diagnosis of oligohydramnios in 28 of the 31 cases (90%). Fetal malformations were found in 16 pregnancies (51.7%): 12 fetuses (38.7%) presented with renal pathology incompatible with life (3 cases of bilateral renal agenesis, 8 cases with bilateral multicystic dysplastic kidney and 1 case of unilateral renal agenesis with contralateral multicystic dysplastic kidney), representing 75% of the total of fetal malformations found. In 2 fetuses (6.5%), gastrochisis was detected and in 2 other cases (6.5%), hydrops fetalis was present (one of them with the diagnosis of congenital syphilis and the other died shortly after birth due to bleeding diathesis). The preterm premature rupture of membranes was the cause of oligohydramnios in 8 cases (25.8%) – the second most frequent cause of oligohydramnios. In 4 fetuses (12.9%) the oligohydramnios emerged in association with intrauterine growth restriction. In the remaining 3 situations (9.7%) in which the etiology of oligohydramnios could not be established prenatally, the placental histopathological examination of one of these fetuses showed severe chorioamnionitis (intrauterine death 5 weeks after amnioinfusion). The other 2 situations were labelled as idiopathic oligohydramnios. There were 2 cases of chromosomal abnormalities (6.9%): 1 case of trisomy 13 (associated with bilateral multicystic dysplastic kidney) and 1 case with an supernumerary marker chromosome. Of the total of 31 pregnancies, 22 have not developed favourably (71%). There were 19 pregnancy interruptions, 1 spontaneous abortion, 1 stillborn after spontaneous labor and 1 fetal death in utero. The remaining 9 cases resulted in live births (29%). Of these, 2 suffered early neonatal death (one of them with bleeding diathesis and the other of extreme prematurity after delivery at home) and the remaining 7 had reasonable/good neonatal development (4 of them needed hospitalization in the neonatology department, 2 of which had respiratory distress syndrome). Complications related directly to the procedure occurred in 3 cases (9.7%): 2 had pre-term labor and 1 had miscarriage. No maternal complications were observed.

Conclusion
In our study, we observed that transabdominal amnioinfusion, especially in cases with severe oligohydramnios, allowed an etiological diagnosis in most cases. The correct diagnosis aids the most appropriate management in each situation and thus improves the prenatal counseling for these couples. We conclude that transabdominal amnioinfusion is a valid technique in prenatal diagnosis and its use must be considered in the presence of severe oligohydramnios. However, it should only be performed by trained professionals and when the need for establishing a diagnosis supersedes the risk of the invasive procedure.