

Amniotic fluid index and fetal bladder outlet obstruction. Do we really need more?

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PURPOSE: With the constant advances in technology and expertise of prenatal diagnosis, necessity of early counseling in cases of bilateral obstructive uropathy has become of paramount importance. To better evaluate fetal renal function new biochemical (serum and urine) fetal markers have been introduced in the literature. However, they are only available at select centers and always requiring an invasive approach. Furthermore, paucity of normal controls sometimes makes interpretation of results difficult. Owing to this growing interest towards biochemical evaluation of fetal renal function, assessment of amniotic fluid, which is mostly expression of fetal urination, has progressively fallen into disrepute, and studies comparing the amount of amniotic fluid with renal function are scant. **MATERIALS AND METHODS:** In a 3-year period 28 cases of bilateral obstructive uropathy were seen prenatally at the Artemisia Medical Center. All cases were initially reviewed at 17 to 20 weeks of gestation when a distended fetal bladder with thickened wall and enlarged kidneys were visualized. At the same time ultrasonographic assessment of amniotic fluid was performed by calculating the amniotic fluid index. An amniotic fluid index less than the 25th percentile was considered below average and an index less below the 5th percentile was considered oligohydramnios, whereas an index between 50th and 75th percentiles was considered normal. All cases were subsequently evaluated for renal function up to age 1 year. Impaired renal function was defined as a serum creatinine greater than 1.2 mg/dl before age 1 year. **RESULTS:** Of the 28 cases 18 had an index of oligohydramnios (group 1) and 10 had a normal index (group 2). No significant variations were observed in amniotic fluid index at repeated consultations throughout pregnancy. Two cases in group 1 and 1 case in group 2 were lost to followup while in the other group 1 cases intrauterine death occurred. Bilateral obstructive uropathy was confirmed in all instances after birth as valves in 18 cases and urethral atresia in 3. Of the 12 surviving group 1 cases there were 3 neonatal deaths from severe lung hypoplasia, and in the remaining 9 cases mean serum creatinine at each evaluation before age 1 year was 1.3 +/- 0.2 mg/dl. All patients in group 2 survived with a mean serum creatinine at each evaluation of 0.6 +/- 0.1 mg/dl ($p < 0.05$). **CONCLUSIONS:** Despite widespread use of prenatal biochemistry, evaluation of amniotic fluid by the amniotic fluid index remains a reproducible and inexpensive method to predict renal function in cases of bilateral obstructive uropathy of any origin. It retains its validity not only in severe, but also in milder reductions. Conversely, intact amniotic fluid mostly invariably predicts normal renal function at long-term evaluation. For a better understanding of the disease such information is to be promptly conveyed to the prospective parents at each prenatal consultation.

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