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A clinician's concerns about motor function outcomes of fetal surgery for myelomeningocele

Check for updates

TO THE EDITORS: In 2011, Adzick et al[1] reported the outcomes of the Management of Myelomeningocele Study (MOMS) of fetal surgery vs postnatal surgery for myelomeningocele. Enrollment was closed early because the benefit of fetal surgery was demonstrated in all outcome domains. Farmer et al[2] recently (2018) reported in the Journal motor function outcomes at 30 months of age for the complete study population and confirmed that fetal surgery resulted in better motor function segmental level compared with the anatomic level of lesion and better ambulation status than did postnatal surgery.

I am a neurodevelopmental pediatrician who took care of patients with spina bifida for 35 years. I have the following concerns about the motor function outcomes reported by MOMS[1,2]:

1. The age at which motor function outcomes was determined, 30 months, is too young to assess both muscle function segmental level[3] and ambulation status in myelomeningocele accurately.[4] This casts doubt on the validity of main motor function outcomes of MOMS.
2. In Farmer et al[2], male sex appears to be an unrecognized confounder favoring better motor function outcomes in fetal sugery.[1,2]
3. Motor function impairment from spinal cord tethering may be more frequent after fetal surgery than postnatal surgery. Adzick et al[1] found a trend toward a greater prevalence of tethered cord surgery in the fetal surgery cohort than in postnatal surgery cohort at 12 months old (8% vs 1%; $P = .06$),[1] but prevalences of tethered cord surgery in the 2 cohorts at 30 months of age were not reported by Farmer et al.[2]
4. The primary motor outcome of MOMS, called walking independently, favored fetal surgery by 40% to 24%, but walking independently is too easily misconstrued by both parents who are deciding about fetal surgery and by obstetricians who are counseling them. It is defined in the *Methods* section as "taking 10 steps without devices," a low bar for ambulation for 30 month old children, most of whom can run and jump. Furthermore, motor function differences were less marked on the widely accepted secondary outcome measure, the Bayley Scales of Infant Development (15% in the normal range for fetal surgery vs 7%).

Parents and obstetricians need to understand that it is likely that most patients who have had fetal surgery will have life-long impairments of muscle function and mobility and consider this when weighing risks and benefits. ■

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