

Abstract:

OBJECTIVE: To investigate whether persistently absent umbilical artery end-diastolic flow in the intrauterine growth-restricted fetus after betamethasone administration is associated with altered perinatal outcomes. **METHODS:** This is a retrospective cohort study of 92 pregnancies complicated by intrauterine growth restriction (IUGR) and absent end-diastolic flow in which antenatal betamethasone was given. Predefined maternal outcomes (maternal age, gestational age at diagnosis of absent end-diastolic flow, gestational age at delivery, preexisting medical conditions) and neonatal outcomes (including birth weight; perinatal mortality; duration of neonatal intensive care unit admission; requirement for intubation, assisted ventilation, inotropic support; duration of supplemental oxygen, assisted ventilation; respiratory distress syndrome, necrotizing enterocolitis, intraventricular hemorrhage) were analyzed. **RESULTS:** Betamethasone administration was associated with a transient return of end-diastolic umbilical artery flow in 58 pregnancies (63%) and persistent absent end-diastolic flow in 34 (37%). Persistent absent end-diastolic flow was seen more frequently in women with prepregnancy medical disorders (59% compared with 24%, $P < .001$). Neonates from the persistent absent end-diastolic flow subgroup were more likely to require assisted ventilation (93.1% compared with 73.5%, $P = .03$) and to have longer durations of assisted ventilation (median time 30 days compared with 4 days, $P = .03$) and supplemental oxygen (median time 45 days compared with 4 days, $P = .04$). **CONCLUSION:** Betamethasone administration is associated with a transient return of end-diastolic flow in two thirds of pregnancies complicated by IUGR and umbilical artery absent end-diastolic flow. Persistent absent end-diastolic flow in the umbilical artery after betamethasone administration may identify a subgroup of fetuses with IUGR at further heightened perinatal risk that, as neonates, are more likely to require assisted ventilation and a longer duration of ventilation and supplemental oxygen.