

Monochorionicity in the absence of TTTS is not associated with an increased risk of adverse neurodevelopment at 5 years of age.

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Despite stabilising twin pregnancy rates over the last two decades, as much as one birth in 30 is a twin birth. With twin preterm birth rates being as high as 60% (Martin et al, National Vital Statistics Reports;2019:68), prematurity represents the major factor influencing overall perinatal outcomes in twins. Monochorionicity (MC), with its attendant unique complications (including twin-to-twin transfusion syndrome (TTTS) and selective fetal growth restriction (sFGR)), represents another major risk factor for adverse perinatal outcome in twinning. MC complications contribute to the increased perinatal death rate evident in MC twins compared to dichorionic (DC) twins, as well as the greater premature birth rates [often iatrogenic] amongst MC twins. The potential for neurological harm associated with TTTS is now well understood, whilst in comparison that associated with growth discordance / sFGR or monochorionicity itself, remains less well established.

Existing data have suggested increased rates of long-term neurodevelopmental deficits in MC twins overall and especially in those with growth discordance. Perinatal care of twins has improved significantly since data from cases followed in the 90's reported an 8-fold greater risk of cerebral palsy (CP) in MC twins over DC twins, with this being 19-fold higher in MC twins with discordant growth (Adegbite et al AJOG 2004,190:156-63). A 37% rate of neurological damage has been reported even in the normally grown twin of an sFGR pair, when the co-twin has abnormal Dopplers; however, this was based on neuro-imaging findings within the first month and a half of life (Gratacos et al Ultrasound Obstet Gynecol 2004;24: 15-63). More recent data has shown a difference in mild neurological morbidities only, but follow-up, at a median of 24 months, ranged broadly from 12 months to 7 years (Rustico et al Ultrasound Obstet Gynecol 2017,49, 387-93). Despite the limitations of the available outcome data, such information underpins counselling in MC gestations complicated by sFGR. The question "will my twins be OK in the end?" remains one that is not easy to answer with confidence.

The EPIPAGE2 cohort has the advantage of representing a more recent large national cohort of preterm births, recruited over a single year and with long term follow-up data. The sub-analysis presented here (Horau et al BJOG 2023, TBC), addresses the association of chorionicity and neurodevelopmental outcomes of prematurely delivered twins (22-34 weeks) at early school age (5 $\frac{1}{2}$ years). The comprehensive testing likely paints a more realistic picture of the neurodevelopmental and neurobehavioural status of MC twins than these prior studies.

Within the described population, 24% of twins were MC. The 20% of these complicated by TTTS were excluded from the outcome analysis given the known impact of TTTS. Growth discordance of 20% or more was found in 26.2% of the MC twins compared with 11.8% of the DC twins. In the context of a population with over a quarter of MC twins displaying significant growth discordance, the results are encouraging. Although fewer (68%) of MC twins were alive at discharge compared to DC twins (78%), the severe CP rates at 5 years were equivalent at around 1%. Amongst survivors there were no differences in the neurodevelopmental or neuro-behavioural assessments between the MC and DC twins; with adverse outcomes seemingly therefore being linked principally to prematurity rather than chorionicity or growth discordance itself.