Background Delayed cord clamping (DCC) effects both cardio-pulmonary transition and blood volume in neonates. Understanding the circulation through the umbilical vessels immediately after birth, with cord and placenta intact, is important.

Objective To describe the duration and patterns of blood flow through the umbilical vessels during DCC.

Methods Arterial and venous umbilical blood flow was measured during DCC using Doppler ultrasound in a prospective, observational study of uncomplicated term vaginal deliveries. Immediately after birth, the probe was placed in the middle of the umbilical cord and the pattern and duration of flow in the vein and arteries evaluated until cord clamping.

Results Thirty infants were studied. Venous: In 10% there was no flow, in 57% flow stopped at a median (IQR) min:sec of 4:34(3:03–7:31) after birth before cord was clamped, and in 33% flow continued until cord clamping at 5:13 (2:56–9:15). Venous flow was initially intermittent (100% increase during large breaths, stopped/reversed during crying), but became continuous. Arterial: In 17% there was no flow, in 40%, flow stopped at 4:22(2:29–7:17), while cord pulsations were still palpable. In 43% flow continued until cord was clamped at 5:16 (3:32–10:20). Arterial flow was pulsatile, unidirectional towards placenta or bidirectional to/from placenta. In 40% flow became continuous (non pulsatile) later after birth.

Conclusion During DCC venous and arterial umbilical flow occurs for longer than previously described. Net placental transfusion is probably the result of several factors of which breathing could play a major role. Umbilical flow is unrelated to cessation of pulsations.

QF-PCR as a Stand-Alone Test for Diagnosis of Aneuploidies in Pre and Postnatal Samples: An Indian Report

Down syndrome is the most common aneuploidy seen in live born babies with the prevalence of 1 in 1000 followed by other trisomies. The burden of aneuploidies can be reduced with new molecular cytogenetic technology which helps in early intervention and genetic counselling. As our centre is being a referral centre for all genetic disorders, we receive a high risk couples related to chromosomal abnormalities as having one affected child. Since we are providing QF-PCR as a stand-alone test for postnatal diagnosis, the same methodology was extrapolated for prenatal diagnosis.

Initially, 500 postnatal samples (Blood in EDTA vial) and 240 amniotic fluid samples were received for analysis of chromosomal aneuploidies from various part of the country. The DNA was extracted with QIAamp DNA mini kit by Qiagen. QF-PCR was carried out with the following markers D21S1411, D21S11, D21S1435, D21S1412, AMEL, SRY, D18S535, D18S391, D13S258, D13S634 and XHPRX, X22 whose heterozygosity have been studied.

We observed 100% concordance with the clinical diagnosis as well as cytogenetic analysis of postnatal samples. With these results we went for prenatal services were chromosomal studies are very common for suspected Down syndrome pregnancies. Out of 240 pregnancies studied, 2% (5) was of Trisomy 21 and a single case of Trisomy 18 was identified, these results were also reconfirmed with karyotyping results.

Results of present investigation reassure QF-PCR as stand-alone test for high risk pregnancies. This is the first study from India that tested the in-house developed multiplex QF-PCR for post and prenatal diagnosis.