

Comparison of fetal portal venous complex configuration between twins

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Objective

Fetal portal venous complex (FPVC) is classified into three different subtypes, which are T- type, X- type and H- type, according to the angle of insertion of main portal vein to the portal sinus. In this study, we tried to understand the genetic basis of FPVCs inheritance by comparing the concordance rates of FPVC subtypes between dichorionic and monozygotic twin peers.

Methods

The study was conducted between April 2019 and January 2023 at Bezmialem Vakıf University, Department of Obstetrics and Gynecology. All the twin pregnancies that have been evaluated at prenatal diagnosis for anomaly screening with normal fetal anatomy were included in the study. FPVCs were evaluated with gray scale and Doppler US. The type of FPVC were noted (T-type, X- type and H-type). The rate of same FPVC between monozygotic and dichorionic twins was compared.

Results

A total of 95 dichorionic and 38 monozygotic twins were included in the study. The maternal age, body mass index, gestational age at evaluation was similar between groups (maternal age; 31.67 ± 4.82 vs 31.52 ± 4.75 , $p=0.873$, BMI; 27.52 ± 4.62 vs 27.9 ± 4.42 , $p=0.66$, Gestational age at evaluation; 156 ± 24 vs 152 ± 25 , $p=0.37$). The rate of pregnancies elucidated with In- vitro fertilization and ovulation induction & intrauterine insemination was significantly higher in dichorionic group [48(51%) vs 7 (18%), $p<0.001$, and 17(18.1%) vs 1 (2.6%), $p<0.001$] While T- type portal system was significantly more common in monozygotic twin (91.9% vs 78.7, $p=0.04$), the minor forms of FPVC were seen mostly in dichorionic twins (%12 vs %5.4, $p=0.025$, and %9 vs 2.7, $p=0.014$) The concordance rate between monozygotic was significantly higher than dichorionic twin peers (%86.5 vs %64.8, $p=0.011$).

Conclusion

Our results indicate that genetically identical FPVC may have different patterns but they, as with fingerprints and palmprints, have significant genetic dependence.