

学位論文審査結果の要旨

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(学位論文審査結果の要旨)

Fetal Biometric Assessment and Infant Developmental Prognosis of the Tadalafil Treatment for Fetal Growth Restriction

【主論文審査結果の要旨】

著者らは論文において下記の内容を述べている。

Purpose:

Tadalafil is expected to treat fetal growth restriction (FGR), a risk factor for stillbirth and neonatal morbidity. This study aimed to evaluate the fetal biometric growth pattern of fetuses with FGR treated with tadalafil by ultrasonographic assessment.

Methods:

This was a retrospective study. Fifty fetuses diagnosed with FGR and treated by maternal administration of tadalafil and ten controls who received conventional treatment at Mie University Hospital from 2015 to 2019 were assessed. Fetal biparietal diameter (BPD), head circumference (HC), abdominal circumference (AC), femur length (FL), and estimated fetal weight (EFW) at the start of treatment and at two weeks and four weeks of treatment were mainly assessed by ultrasound examination. The Wilcoxon signed-rank test was used to assess the measures. The Kyoto Scale of Psychological Development (KSPD) was used to assess the developmental prognosis on tadalafil-treated children at 1.5 years of corrected age (CA) and 3 years old.

Results:

The median gestational age at the start of treatment was 30 and 31 weeks in the tadalafil and control groups, respectively, and the median gestational age at delivery was 37 weeks in both groups. In the tadalafil treatment group, the Z-score of HC was significantly increased

at 4 weeks of treatment ($p = 0.005$). There was no significant difference in the Z-scores between the start of treatment and 2 and 4 weeks of treatment in the BPD, FL, and EFBW, although AC tended to increase by 4 weeks after tadalafil treatment initiation ($p = 0.06$). HC/AC was significantly decreased at 4 weeks of tadalafil treatment. In the conventional treatment group, there were no significant differences in any biometric measurement. The UA-RI significantly decreased after 4 weeks ($p=0.049$) in the tadalafil group. In the Control group, no significant change in UA-PI were observed in the study period. MCA showed no significant change in either group. The number of cases with an abnormal score of less than 70 on the KSPD test was 19% for P-M, 8% for C-A, 19% for L-S, and 11% for total area at 1.5 years CA. At 3 years old, the respective scores were 16%, 21%, 16%, and 16%.

Conclusion:

Tadalafil significantly increased the HC of growth-restricted fetuses. This effect may result from improved uteroplacental perfusion and the maintained cerebral blood flow redistributed as a brain-sparing effect. These findings may contribute to the prolongation of gestation of fetuses with growth restriction.

胎児発育不全に対するタダラフィルの経母体投与における胎児体格パラメーターの評価と、乳幼児の発達予後を検討し、タダラフィル経母体投与により胎児の頭位発育が維持され、乳幼児の発達予後に寄与する可能性を示した論文であり、学術上極めて有益であり、学位論文として価値あるものと認めた。

Medicina 2023,59,900

Published : May 8, 2023

doi:10.3390/medicina59050900

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