Peran nilai apparent diffusion coefficient plasenta dalam mendiagnosis pertumbuhan janin terhambat: telaah sistematis dan meta-analisis = Role of apparent diffusion coefficient of the placenta in diagnosing intrauterine growth restriction: systematic review and meta-analysis

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Abstrak

Latar Belakang: Pertumbuhan janin terhambat (PJT) merupakan suatu kondisi dimana pertumbuhan janin tidak mencapai potensi genetiknya. Diagnosis PJT dilakukan dengan pemeriksaan ultrasonografi (USG) serial, namun pemeriksaan USG memiliki beberapa keterbatasan. Pemeriksaan Magnetic Resonance Imaging (MRI) plasenta terutama MRI difusi, yaitu Diffusion Weighted Image (DWI) dan Apparent Diffusion Coefficient (ADC), merupakan modalitas pemeriksaan yang dapat mengatasi keterbatasan dari pemeriksaan USG dengan melihat perubahan di level mikrostruktural secara tidak langsung.
Tujuan: Melihat peran nilai ADC plasenta dalam mendiagnosis PJT.
Metode: Pencarian sistematis menggunakan data dasar Scopus dan PubMed dilakukan pada September 2021. Studi yang membandingkan pemeriksaan MRI DWI-ADC plasenta antara pasien yang memiliki kehamilan normal dan PJT atau insufisiensi plasenta di suia kehamilan trimester kedua dan ketiga dengan pemeriksaan USG dan atau kondisi bayi saat dilahirkan sebagai referensi baku, diidentifikasi. Analisis statistik dari nilai ADC plasenta antara pasien normal dan PJT diuji.
Hasil: Empat studi diidentifikasi. Didapatkan nilai rerata ADC plasenta pada janin PJT dan/atau insufisiensi plasenta lebih rendah dibandingkan dengan janin normal. Namun, batas nilai rerata ADC plasenta pada janin dengan PJT dan janin normal sulit untuk ditentukan, karena hasil yang tumpang tindih antara janin dengan PJT dan janin normal. Kualitas bukti sedang.
Kesimpulan: Penurunan nilai rerata ADC plasenta dapat membantu dalam mendiagnosis adanya PJT pada kehamilan trimester kedua dan ketiga.
.....Background: Intrauterine growth retardation (IUGR) is a condition in which the growth of the fetus does not reach its genetic potential. The diagnosis of IUGR is made by serial ultrasonography (USG), but ultrasound examination has some limitations. Magnetic resonance imaging (MRI) of the placenta, especially diffusion MRI, which are Diffusion Weighted Image (DWI) and Apparent Diffusion Coefficient (ADC), is an examination modality that can overcome the limitations of ultrasound examination by looking at changes in the microstructural level indirectly.
Objectives: To evaluate the role of placental ADC values ââin diagnosing IUGR.
Methods: A systematic search of Scopus and PubMed database were performed through September 2021. Studies comparing DWI-ADC MRI of the placenta between patients who had a normal pregnancy and IUGR or placental insufficiency in the second and third trimesters of pregnancy with ultrasound examination and/or the condition of the baby at birth as a standard reference, were identified. Statistical analysis of placental ADC values ââbetween normal and IUGR patients was tested.
Results: Four studies were identified. The mean value of placental ADC in IUGR and/or placental insufficiency was lower than in normal fetuses. However, the cut-off values of mean placental ADC ââin IUGR and normal fetuses are difficult to determine, because of the overlapping results between IUGR and

normal fetuses. The quality of evidence was moderate.
Conclusion: Decreased mean placental ADC values can help in diagnosing the presence of IUGR in the second and third trimesters of pregnancy.