

KORELASI STATUS USIA TULANG (*BONE AGE*) DENGAN DERAJAT PERAWAKAN PENDEK PADA ANAK USIA BALITA

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ABSTRAK

Pendahuluan: Pertumbuhan tubuh anak dipengaruhi oleh berbagai faktor seperti genetik, hormonal, nutrisi, dan psikososial, serta dapat dinilai melalui usia tulang (*bone age*) dan tinggi badan. Metode evaluasi usia tulang yang umum digunakan adalah radiografi tangan (Greulich-Pyle). Beberapa studi menyebutkan bahwa usia tulang yang tertinggal (*retarded*) dan kejadian perawakan pendek dapat berkaitan dengan kondisi patologis seperti malnutrisi, infeksi, dan gangguan endokrin. Diagnosis dini diperlukan untuk menentukan etiologi kelainan pertumbuhan tubuh anak dan tata laksanaanya, namun belum banyak penelitian yang membahas korelasi usia tulang dengan derajat perawakan pendek, khususnya pada anak balita.

Metode: Penelitian analitik observasional dengan pendekatan *cross sectional*. Penelitian dilakukan pada bulan November 2023 – April 2025. Subjek adalah 127 pasien berusia kurang dari 5 tahun di 8 puskesmas wilayah kota Semarang yang dilakukan pemeriksaan rontgen tangan dan pergelangan tangan kiri pasien dengan alat rontgen *mobile* yaitu mesin Allenger tipe Mars 6 dan dosis radiasi kV 40 - 45, mA 0,1 - 0,2, yang hasilnya (sesuai kriteria inklusi) dibacakan oleh dokter spesialis radiologi konsultan anak. Analisis data dilakukan uji normalitas dan uji korelasi Rank Spearman.

Hasil: Analisis uji korelasi menunjukkan bahwa tidak ada korelasi yang signifikan antara status usia tulang dengan derajat perawakan pendek pada anak usia balita ($p = 0,481$; $\rho = 0,063$).

Simpulan: Status usia tulang (*bone age*) tidak berkorelasi secara signifikan dengan derajat perawakan pendek pada anak usia balita. Diperlukan asesmen lebih lanjut dan monitor berkala untuk mengetahui pola pertumbuhan dan etiologi kejadian usia tulang yang tidak normal maupun perawakan pendek pada anak usia balita, baik varian normal maupun kondisi patologis.

Kata kunci: *Perawakan pendek, Status usia tulang, Balita*

CORRELATION BETWEEN BONE AGE STATUS AND THE DEGREE OF SHORT STATURE IN CHILDREN UNDER FIVE

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ABSTRACT

Introduction: A child's physical growth is influenced by various factors, including genetic, hormonal, nutritional, and psychosocial elements, that can be assessed through bone age and height measurements. The most commonly used method for evaluating bone age is hand radiography based on the Greulich-Pyle atlas. Several studies have reported that delayed bone age and short stature may be associated with pathological conditions such as malnutrition, infections, and endocrine disorders. Early diagnosis is essential to determine the etiology of growth abnormalities and guide appropriate management. However, there is a lack of research exploring the correlation between bone age and the degree of short stature, particularly in children under five years of age.

Method: This was an observational analytic study with a cross-sectional design, conducted from November 2023 to April 2025. The subjects were 127 children under the age of five from eight primary healthcare centers (puskesmas) in Semarang. Radiographic examination of the left hand and wrist was performed using a mobile X-ray machine (Allenger Mars 6) with radiation settings of 40–45 kV and 0.1–0.2 mA. Radiographs meeting the inclusion criteria were interpreted by a pediatric radiology consultant. Data were analyzed using normality testing followed by Spearman's rank correlation test.

Results: Correlation analysis showed no significant relationship between bone age status and the degree of short stature in children under five ($p = 0.481$; $\rho = 0.063$).

Conclusion: Bone age status is not significantly correlated with the degree of short stature in children under five years old. Further comprehensive assessment and periodic monitoring are essential to elucidate growth patterns and determine the etiology of abnormal bone age or short stature in children under five years of age, whether attributable to normal variants or underlying pathological conditions.

Keywords: Short stature, Bone age status, Children under five