Perbandingan Rerata Kadar Besi Dan Seng Pada Rambut Dan Serum Pasien Kanitis Prematur Dengan Kontrol Sehat Serta Hubungannya Terhadap Derajat Keparahan Kanitis Prematur = Comparison of The Mean Hair and Serum Level of Iron and Zinc Between Premature Canities Patients and The Healthy Population and Its Relationship with The Severity of Premature Canities

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Abstrak

Latar Belakang: Rambut memiliki berbagai fungsi, salah satunya sebagai perkiraan usia individu. Kanitis, atau uban, merupakan tanda penuaan yang muncul pada rambut yang umumnya terjadi pada dekade ke-4 kehidupan. Kanitis prematur (KP) merupakan istilah munculnya kanitis sebanyak 5 helai rambut sebelum usia 25 tahun pada ras Asia. Etiologi penyakit KP belum sepenuhnya dipahami dan dianggap sebagai kelainan multifaktorial. Defisiensi mikronutrien tertentu, meliputi besi dan seng, diperkirakan berperan dalam munculnya KP. Oleh karena itu, diperkirakan kadar besi dan seng dalam serum dan rambut dapat mencerminkan risiko terjadinya KP pada seseorang.

Tujuan: Menganalisis perbedaan rerata kadar besi dan seng rambut dan serum KP dibandingkan populasi sehat dan menganalisis korelasi antara kadar besi dan seng rambut dan serum pasien KP dengan derajat keparahan KP.

Metode: Penelitian ini merupakan studi observasional analitik dengan desain kasus kontrol dan dilakukan matching jenis kelamin dan usia. Populasi target penelitian adalah pasien KP dan individu sehat yang diambil dengan metode consecutive sampling berdasarkan kriteria penerimaan dan penolakan. Analisis statistik yang sesuai dilakukan untuk membuktikan hipotesis penelitian. Nilai $p<0,05$ dianggap signifikan secara statistik.

Hasil: Diantara 32 sampel kelompok KP, 7 orang mengalami KP ringan, 14 orang mengalami KP sedang, dan 11 orang mengalami KP berat. Diperoleh perbedaan kadar seng rambut yang bermakna secara statistik antara kelompok KP dengan kelompok sehat (184,03 vs. 231,83; p=0,01). Perbedaan parameter lainnya ditemukan tidak bermakna secara statistik. Tidak ditemukan adanya korelasi yang bermakna secara statistik antara kadar besi dan seng serum maupun rambut terhadap kejadian atau derajat keparahan KP. Data tambahan, ditemukan korelasi positif lemah antara indeks massa tubuh (IMT) dengan derajat keparahan KP (r= 0,392; p=0,026). Riwayat KP keluarga merupakan faktor risiko KP (aOR 14,829; 95% IK 3,073–71,566, p=0,001). Setiap penurunan 1 unit (µg/g) kadar seng rambut, kemungkinan mengalami KP meningkat (aOR 1,007; 95% IK 1,001–1,013, p=0,022).

Kesimpulan: Kadar seng rambut pada kelompok KP lebih rendah dan berbeda bermakna secara statistik dibandingkan dengan kelompok kontrol sehat, namun tidak ditemukan perbedaan rerata yang bermakna pada parameter lainnya. Tidak ditemukan korelasi antara kadar besi dan seng rambut dengan serum, maupun

dengan derajat keparahan KP.
.....Background: Hair has various functions, one of which is an estimate of an individual's age. Canities, or gray hair, is a sign of aging that appears on the hair and generally begins to occur in the 4th decade of life. Premature canities (PC) is a term for the appearance of gray hair as much as 5 strands of hair before the age of 25 years in Asian ethnicity. The etiology of PC is not fully understood and is considered a multifactorial disorder. Certain micronutrient deficiencies, including iron and zinc, are thought to play a role in the development of PC. Therefore, it is predicted that iron and zinc levels in serum and hair can reflect a person's risk of developing PC.

Aim: To analyze the difference in mean serum and hair levels of iron and zinc between subjects with PC and healthy controls and to assess their correlation with the severity of PC.

Method: This study is an analytic observational study with a case-control design and matched according to age and gender. The target population of the study was patients with PC and healthy individuals who were recruited by consecutive sampling based on inclusion and exclusion criteria. Appropriate statistical analysis was performed to prove the research hypothesis. A p-value of <0.05 is considered statistically significant.

Results: Among the 32 subjects of the PC group, 7 subjects had mild PC, 14 subjects had moderate PC, and 11 subjects had severe PC. There was a statistically significant difference in hair zinc levels between the PC group and the healthy controls (184.03 vs. 231.83; p=0.01). Differences in other parameters were found to be not statistically significant. There was no statistically significant correlation between serum and hair iron and zinc levels on either the incidence or the severity of PC. A weak positive correlation between body mass index (BMI) and the severity of PC (r= 0.392; p= 0.026) was obtained. Family history of PC is a risk factor for PC with an aOR 14,829; 95% CI 3.073–71,566, p=0.001. In addition, for every 1 µg/g decrease in hair zinc levels, the probability of experiencing PC increased (aOR 1.007; 95% CI 1.001–1.013, p=0.022).

Conclusion: Hair zinc levels in the PC group were lower and statistically significant compared to the healthy controls but no significant difference was found in other parameters. There was no correlation between hair iron and zinc levels with serum, nor with the severity of PC.