Pengaruh dosis kumulatif metotreksat dan steroid terhadap kejadian osteoporosis sekunder pada anak dan remaja dengan leukemia limfoblastik akut = Influence of methorexate and steroid cumulative doses in secondary osteoporosis in children and adolescents with acute lymphoblastic leukemia

Adrian Himawan Singgih, author

Abstrak

Latar belakang. Anak dan remaja dengan leukemia limfoblastik akut (LLA) berisiko mengalami osteoporosis sekunder, salah satunya karena pemberian obat kemoterapi metotreksat dan steroid. Saat ini belum terdapat data prevalens osteoporosis sekunder pada anak dengan LLA di Indonesia dan bukti keterkaitan dosis kumulatif metotreksat dan steroid terhadap kejadian osteoporosis sekunder pada anak dengan LLA.
Tujuan. Mengetahui ada tidaknya kaitan antara dosis kumulatif metotreksat dan/atau steroid terhadap kejadian osteoporosis sekunder pada anak dan remaja dengan LLA.
Metode. Penelitian ini merupakan studi potong lintang terhadap 52 anak dan remaja dengan LLA yang sedang menjalani kemoterapi di Rumah Sakit dr. Cipto Mangunkusumo (RSCM). Pengambilan darah dan foto polos tulang belakang dilakukan untuk menilai parameter kesehatan tulang, serta pemeriksaan dual energy X-ray absorptiometry (DEXA) untuk menilai densitas mineral tulang. Analisis regresi logistik digunakan untuk menganalisis keterkaitan dosis kumulatif metotreksat dan steroid terhadap kejadian osteoporosis sekunder.
Hasil. Median usia subyek adalah 10 (7-14) tahun dengan lelaki 54% (n=52). Didapatkan kejadian osteoporosis sekunder 6/52 (11,5%) dan densitas mineral tulang rendah 11/52 (21,2%). Tidak didapatkan kaitan antara dosis kumulatif steroid (adjusted RP 0,474 [0,057-3,935], p = 0,489) dan dosis kumulatif metotreksat (adjusted RP 0,083 [0,006-1,126], p = 0,061) dengan kejadian osteoporosis sekunder. Pasien berusia di bawah 10 tahun, memiliki kadar vitamin D rendah, dan status prepubertas memiliki kecenderungan mengalami osteoporosis sekunder.
Kesimpulan. Tidak didapatkan hubungan yang bermakna secara statistik antara dosis kumulatif steroid dan/atau metotreksat terhadap osteoporosis sekunder pada anak dan remaja dengan LLA.
.....Background. Children and adolescents with acute lymphoblastic leukemia (ALL) are at risk of secondary risk, one of which is the administration of chemotherapy drugs (methotrexate and steroids). Currently, there are no data on the prevalence of secondary osteoporosis in children with ALL in Indonesia and evidence about association between methotrexate and steroids with the incidence of secondary osteoporosis with ALL.
Objective. To determine whether there is an association between the cumulative dose of methotrexate and/or steroids on the incidence of secondary osteoporosis in children and adolescents with ALL.
Methods. This study was a cross-sectional study of 52 children and adolescents with ALL who were undergoing chemotherapy at the Cipto Mangunkusumo Hospital (CMH). Blood sampling and plain radiographs of the spine were performed to assess bone health parameters, as well as dual energy X-ray absorptiometry (DEXA) examination to assess bone mineral density. Logistic regression analysis was used

to analyze the association between the cumulative dose of methotrexate and steroids on the incidence of secondary osteoporosis.
Result. The median age of the subjects was 10 (7-14) years with 54% men (n=52). The incidence of secondary osteoporosis was 6/52 (11.5%) and low bone mineral density 11/52 (21.2%). There was no association between the cumulative dose of steroids (adjusted PR 1.501 [0.124-18.124], p=0.75) and the cumulative dose of methotrexate (adjusted PR 0.071 [0.005-0.951], p=0.05) and the incidence of secondary osteoporosis. None of the confounding factors (pubertal status, vitamin D levels, income level, age, and sex) were associated with secondary osteoporosis. Patient aged below 10 years old, have prepubertal status, and with low vitamin D serum tends to have osteoporosis more likely.
Conclusion. There was no statistically significant relationship between the cumulative dose of steroids and/or methotrexate on secondary osteoporosis in children and adolescents with ALL.