

ABSTRAK

HUBUNGAN KADAR FERRITIN SERUM DENGAN KADAR TESTOSTERON SERUM TOTAL PADA PASIEN THALASSEMIA BETA MAYOR LAKI-LAKI YANG MENJALANI TRANSFUSI BERULANG

Robert Dwitama Adiwino

Latar belakang: Prevalensi thalassemia di Asia Tenggara cukup tinggi. Transfusi berulang dan terapi kelasi besi masih menyisakan komplikasi disfungsi pituitari dan hipogonadisme. Penelitian terdahulu melaporkan peningkatan kadar serum ferritin, yang mencerminkan deposisi besi di jaringan, berhubungan dengan derajat keparahan hipogonadisme pada pasien thalassemia beta mayor.

Tujuan: Menganalisis hubungan antara kadar ferritin serum dengan kadar testosteron serum total pada pasien thalassemia beta mayor laki-laki yang menjalani transfusi berulang.

Materi dan metode: Penelitian analitik observasional dengan desain *cross sectional* terhadap seluruh pasien thalassemia beta mayor laki-laki yang menjalani transfusi berulang di Poli Onkologi Satu Atap Medik, Instalasi Rawat Jalan RSUD Dr. Soetomo Surabaya selama bulan Agustus – September 2019. Kadar ferritin serum dan kadar testosteron serum total diambil dari sampel darah pagi hari dalam keadaan puasa.

Hasil: Terdapat 30 pasien thalassemia beta mayor laki-laki dengan rentang usia 18 – 45 tahun yang diikutsertakan dalam penelitian ini. Subyek penelitian rata – rata telah menjalani transfusi berulang selama 16.87 (\pm 6.72) tahun. Gejala terkait penurunan kadar testosteron serum total berupa: penurunan libido dan gangguan ereksi pagi ditemukan dalam proporsi kecil (masing – masing 10 dan 20%). Tanda – tanda pubertas yang terhambat ditemukan pada 6 orang subyek. Seluruh subyek tergolong *severe iron overload* dengan rerata kadar ferritin serum 4765.4 (\pm 1955.01) ng/mL. Penurunan kadar testosteron serum total ditemukan pada 6 orang subyek, meskipun rerata kadar testosteron serum total tergolong normal (650.8 \pm 287.65 ng/dL). Tidak ditemukan korelasi yang bermakna antara kadar ferritin serum dengan kadar testosteron serum total ($p = 0.538$).

Kesimpulan: Kadar ferritin serum dan kadar testosteron serum total pada pasien thalassemia beta mayor laki-laki yang menjalani transfusi berulang tidak berhubungan. Penurunan kadar testosteron serum total pada subyek penelitian ini dapat terkait faktor – faktor lain di luar *iron overload* (anemia, defisiensi hormon leptin, dan ghrelin).

Kata kunci: Thalassemia mayor, *iron overload*, ferritin serum, testosteron serum total, hipogonadisme

ABSTRACT

CORRELATION BETWEEN SERUM FERRITIN LEVELS AND TOTAL TESTOSTERONE LEVELS IN MALE BETA THALASSEMIA MAJOR PATIENTS UNDERGOING REGULAR TRANSFUSIONS

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Background: *Thalassemias are prevalent in Southeast Asia. Regular blood transfusions along with iron chelation might result in pituitary dysfunction and hypogonadism. Several studies indicated that elevated serum ferritin levels, which represents iron deposition, associated with the extent of hypogonadism thalassemia major (TM) patients.*

Objective: *This study conducted to determine the correlation between serum ferritin levels and total testosterone (TT) levels as a marker of gonadal function in adult male TM patients.*

Methods: *Observational study with cross sectional design of all male transfusion dependent TM patients in hematologic outpatient clinics of Dr. Soetomo general hospital from August – September 2019. Total testosterone and serum ferritin levels were measured in the morning, under fasting conditions.*

Results: *A total of 30 male TM patients aged 18 – 45 years were recruited. Subjects already underwent regular blood transfusion for 16.87 (\pm 6.72) years along with oral iron chelation regimen. Symptoms related to low testosterone levels: decreased libido and erectile dysfunction were found on small proportion (10 and 20% respectively). Short stature was found on 7 subjects. Pubertal delay detected on 6 subjects. All subjects were severe iron overloaded, with average serum ferritin levels 4765.4 (\pm 1955.01) ng/mL. Low TT levels were present in 6 subjects, although average TT levels was 650.8 (\pm 287.65) ng/dL. Serum ferritin levels showed no significant correlation with TT levels ($p = 0.538$), even after adjusted for age and duration of transfusion.*

Conclusions: *Serum ferritin levels did not correlate with TT levels in male beta thalassemia major patients undergoing regular transfusions. Low TT levels in our study might be associated with other factors besides iron overload (anemia, leptin and ghrelin deficiency).*

Keywords: *Thalassemia major, iron overload, serum ferritin, total testosterone, hypogonadism*