

**PENGARUH SUPLEMENTASI GLISIN TERHADAP
KADAR *SERUM TRANSFERRIN RECEPTOR* (sTfR) DAN
KADAR HEMOGLOBIN (Hb)**

**Studi eksperimental pada remaja putri anemia defisiensi besi (ADB)
yang disuplementasi besi**

***THE EFFECT OF GLYCINE SUPPLEMENTATION ON SERUM
TRANSFERRIN RECEPTOR (sTfR) LEVELS AND
HEMOGLOBIN (Hb) LEVELS***

**Experimental study to female teenagers with iron deficiency anemia (IDA) that
supplemented with iron**



Tesis

**Untuk memenuhi sebagian persyaratan
mencapai derajat S2**

Magister Ilmu Gizi

**Dian Ayu Zahraini
22030112410011**

**FAKULTAS KEDOKTERAN
UNIVERSITAS DOPONEGORO
SEMARANG**

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ABSTRAK

PENGARUH SUPLEMENTASI GLISIN TERHADAP KADAR *SERUM TRANSFERRIN RECEPTOR (sTfR)* DAN KADAR HEMOGLOBIN (Hb)

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Latar Belakang: Anemia defisiensi besi (ADB) masih menjadi permasalahan kesehatan bagi remaja putri. Suplementasi besi sebagai upaya penanggulangan ADB belum menunjukkan hasil yang optimal, sehingga diperlukan pengembangan suplementasi besi, salah satunya dengan glisin.

Tujuan: Mendiskripsikan pengaruh suplementasi glisin terhadap kadar sTfR dan kadar Hb pada remaja putri anemia defisiensi besi yang disuplementasi besi.

Metoda: Penelitian ini merupakan penelitian *quasi experiment* dengan *pre-post test control group design*. Populasi adalah remaja putri usia 12 – 18 tahun, Hb < 12 mg/dl, sTfR > 18,4 nmol/L, melibatkan 50 remaja putri yang dibagi menjadi dua kelompok yaitu kelompok perlakuan mendapat suplementasi besi 60 mg dan 1 gr glisin tiap hari selama 4 minggu, dan kelompok kontrol mendapat suplementasi besi 60 mg saja tiap hari selama 4 minggu. Data yang diteliti meliputi asupan zat gizi, kadar sTfR, kadar Hb. Data dianalisis menggunakan uji bivariat, *paired t test*, *independent t test*.

Hasil: Terjadi penurunan kadar sTfR pada kelompok perlakuan $6,923 \pm 10,13$ yang berbeda secara bermakna dengan kadar sTfR kelompok kontrol $0,809 \pm 9,076$ ($p=0,008$). Terjadi peningkatan kadar Hb pada kelompok perlakuan $0,79 \pm 1,15$ yang berbeda secara bermakna dengan peningkatan kadar Hb kelompok kontrol $0,22 \pm 0,48$ ($p=0,03$).

Simpulan: Suplementasi glisin menaikkan kadar Hb remaja putri penderita anemia defisiensi besi (ADB) sebelum dikontrol dengan variabel asupan vitamin C ($p=0,04$) dan sesudah dikontrol asupan vitamin C ($p=0,002$). Suplementasi glisin menaikkan kadar sTfR remaja putri penderita anemia defisiensi besi (ADB) sebelum dikontrol dengan variabel asupan vitamin C ($p=0,01$) dan sesudah dikontrol asupan vitamin C ($p=0,004$).

Kata kunci: glisin, besi, anemia defisiensi besi, sTfR, Hb, remaja putri

ABSTRACT

THE EFFECT OF GLYCINE SUPPLEMENTATION ON SERUM TRANSFERRIN RECEPTOR (sTfR) LEVELS AND HEMOGLOBIN (Hb) LEVELS

Experimental study to female teenagers with iron deficiency anemia (IDA) that supplemented with iron

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Background: Iron deficiency anemia (IDA) is still become a health problem in female adolescents. Iron supplementation only as a treatment for IDA still can not reach an optimum results. With that result, there was necessary to developing a strategy for iron supplementation, once treatment with glicyne .

Objective: to describe the effect of glycine supplementation on serum transferrin receptor (sTfR) levels and Hemoglobin (Hb) levels in female teenagers with IDA.

Methods: This study was quasi experimental, pre post test control group design. The population was female teenagers age 12 – 18 years, Hb < 12 mg/dl, sTfR > 18,4 nmol/L, involving 50 subjects, divided into two groups. The first group was experiment group that given the supplement of 60 mg iron and 1 gr glycine a day for 4 weeks. The second group was control group that given the supplement of only 60 mg iron a day for 4 weeks. The data were analyzed with bivariate test, paired t test, independent t test.

Results: There was significantly lower decreased of sTfR levels in treatment group $6,923 \pm 10,13$ nmol/L than control group $0.809,65 \pm 9,076$ nmol/L with $p=0,008$, and significant increased of Hb levels in both treatment group $0,79 \pm 1,15$ mg/dl and control group $0,22 \pm 0,48$ mg/dl with $p=0,03$.

Conclusion: Glycine supplementation for 4 weeks decreased sTfR levels in female teenagers with IDA before controlled by vitamin c intake ($p=0,04$) and after controlled by vitamin c intake variable ($p=0,002$) and increased Hb levels before controlled by vitamin c intake ($p=0,02$) and after controlled by vitamin c intake variable ($p=0,04$).

Keywords: glycine, iron, iron deficiency anemia, sTfR, Hb, female teenagers.