ABSTRACT

THE EFFECT OF PROBIOTIC *Lactobacillus casei* STRAIN SHIROTA ON IMMUNOGLOBULIN G DAN HAEMOGLOBIN LEVELS OF ANEMIC YOUNG TEENAGE GIRLS WHO SUPPLEMENTED FE+FOLAT

Anemia is a frequently nutritional problems experienced by young girls. Anemia in young girls are caused by the high needs due to the rapid growth and menstrual cycle in each month. This research was aimed to analyze the different immune response and hemoglobin levels of young teenage girls who supplemented Fe+Folic after given *Lactobacillus casei* strain Shirota probiotic. This research used the pretest-posttest control group design. This research was conducted in Puskesmas Jabon on June-November 2017. The treatment group was given the supplementation of Fe + Folic acid once in a week and the dairy probiotic *Lactobacillus casei* strain Shirota once in a day, whereas the control groups was given the supplementation of Fe + Folic acid once in a week. The treatments were applied for four weeks. The results showed that the respondents in this research were the early young teenage girls with the normal menstrual cycle patterns, however the long menstruation cycle was longer on the treatment groups. The status of morbidity had decreased during the treatment. Less diverse consumption patterns with an average amount of consumption were not inadequate. There were an increased immunoglobulin G and hemoglobin levels, however it not significant difference between two groups. The supplementation of Fe+Folic acid and the dairy probiotic *Lactobacillus casei* strain Shirota could increase the immunoglobulin G levels of 21.1 ± 38.4 µg/ml, while the supplementation of Fe+Folic acid without probiotic administration could only increase the immunoglobulin G levels of 10.3 ± 15.5 µ g/ml. The supplementation of Fe+Folic acid and the dairy probiotic *Lactobacillus casei* strain Shirota could increase the hemoglobin levels of 0.7 ± 1.0 g/dl, while the supplementation of Fe+Folic acid without probiotic administration could increase the hemoglobin levels of 0.1 ± 0.5 g/dl. There were an anemia proportion reduction of 36.4% in the treatment groups and 9.1% in the control groups after 4 weeks treatment.

Keywords: Probiotic, *Lactobacillus casei* strain Shirota, immunoglobulin G, hemoglobin, anemia, young teenage girls

ABSTRAK

Pengaruh Pemberian Probiotik Lactobacillus casei strain Shirota terhadap Respon Imun dan Kadar Hemoglobin Remaja Putri Anemia yang Disuplementasi Fe+Folat

Anemia merupakan masalah gizi yang sering dialami oleh remaja putri. Penyebab anemia pada remaja putri adalah kebutuhan yang tinggi akibat pertumbuhan pesat dan siklus menstruasi setiap bulan. Namun, kondisi ini tidak diimbangi dengan pola konsumsi yang baik. Penelitian ini bertujuan untuk menganalisis perbedaan respon imun dan kadar hemoglobin remaja putri anemia yang disuplementasi Fe+folat sesudah pemberian probiotik Lactobacillus casei strain Shirota. Penelitian dilakukan di Puskesmas Jabon, Kecamatan Jabon selama 4 minggu. Desain penelitian ini adalah pretest posttest control group design. Perlakuan dibagi menjadi dua kelompok dengan masing-masing kelompok sebanyak 12 orang. Kelompok perlakuan diberikan suplementasi tablet Fe + Folat seminggu sekali dan susu probiotik Lactobacillus casei strain Shirota satu kali sehari, sedangkan kelompok kontrol diberikan suplementasi tablet Fe + Folat seminggu sekali. Dua remaja putri drop out selama perlakuan sehingga hanya 22 remaja putri yang memenuhi kriteria untuk dianalisis. Hasil penelitian menunjukkan bahwa sesudah pemberian perlakuan selama 4 minggu, peningkatan kadar immunoglobulin G pada kelompok perlakuan (21,1±38,4 µg/ml) lebih tinggi dibandingkan dengan kelompok kontrol (10,3±15,5 µg/ml), tetapi tidak berbeda secara signifikan. Peningkatan kadar hemoglobin pada kelompok perlakuan (0,7±1,0 g/dl) lebih tinggi dibandingkan dengan kelompok kontrol (0,1±0,5 g/dl), tetapi tidak berbeda secara signifikan. Terdapat penurunan proporsi anemia sebesar 36,4% pada kelompok perlakuan dan 9,1% pada kelompok kontrol sesudah pemberian perlakuan selama 4 minggu. Kesimpulan dari penelitian ini adalah bahwa pemberian tablet Fe + Folat dan probiotik Lactobacillus casei strain Shirota dapat meningkatkan kadar immunoglobulin G dan kadar hemoglobin yang lebih tinggi dibandingkan dengan pemberian tablet Fe+folat tanpa probiotik, namun tidak berbeda signifikan.

Kata kunci: probiotik, Lactobacillus casei strain Shirota, immunoglobulin G, hemoglobin, anemia, remaja putri