Efek Garam Rumput Laut Terhadap Tekanan Darah, Angiotensin II Plasma, Natrium dan Kalium Urin Pasien Hipertensi Esensial Derajat 1 = Effect of Seaweed Salt on Blood Pressure, Angiotensin II Plasma, Sodium and Potassium Urine in Grade 1 Essential Hypertension Patients

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Abstrak

Riskesdas 2007 dan 2013 menyebutkan penduduk Indonesia berusia di atas 10 tahun mengonsumsi garam harian cukup tinggi. Riskesdas 2013 dan 2018. menunjukkan prevalensi hipertensi meningkat dari 25,8% menjadi 34,1%. Indonesia merupakan salah satu penghasil rumput laut merah, Euchema cottonii terbesar di dunia, tapi belum ada penelitian potensi rumput laut ini sebagai pengganti garam. Penelitian ini bertujuan untuk mengevaluasi efek mengganti garam biasa dengan garam rumput laut Euchema cottonii dengan kandungan Na lebih rendah dari garam biasa dalam usaha menurunkan tekanan darah pada subyek hipertensi esensial derajat 1. Tahap pertama penelitian ini adalah pembuatan garam rumput laut (GRL) yang aman dan memiliki rasa asin garam biasa (GB), dilakukan di unit produksi makanan di rumah sakit, dari Desember 2016 sampai Maret 2017.
Hasil uji sensori oleh 9 panelis digunakan untuk menentukan konsentrasi garam rumput laut yang dipakai pada penelitian tahap dua. Penelitian tahap kedua adalah uji klinis dengan pembanding secara acak tersamar ganda. Subyek diwawancara dengan food frequency questionnaire, dilakukan uji cita rasa GRL dengan konsentrasi yang telah ditetapkan tahap pertama dibandingkan dengan GB. Subyek diukur antropometri, tekanan darah, angiotensin II plasma, CRP serum, gula darah puasa, serum kreatinin, urin lengkap, serta kadar Na, K dan kreatinin dalam urin 24 jam. Subyek dievaluasi keluhan, dan diukur tekanan darahnya setiap minggu selama empat minggu. Rumput laut dari Saumlaki, Maluku dipilih berdasarkan analisis keamanan dari cemaran logam, kapang dan bakteri. Uji cita rasa asin oleh panelis mendapatkan garam rumput laut (GRL), yaitu komposisi bubuk garam rumput laut dan bubuk garam biasa dengan rasio 1:1, mempunyai rasa asin yang tidak berbeda bermakna dengan garam biasa (GB) (p=0.332).
Analisis mineral menunjukkan GRL mengandung kadar Na lebih rendah dan kadar K lebih besar daripada GB. Uji klinis pada 62 subyek dilakukan di rumah sakit dan tiga puskesmas di Jakarta dari Desember 2017 hingga Desember 2019. Setelah empat minggu perlakuan, ditemukan perbedaan penurunan secara bermakna tekanan darah sistolik (p=0.004) dari subyek kelompok GRL (-15,3±9,7) dibandingkan kelompok GB (-8,0±9,2). Demikian pula perbedaan penurunan tekanan darah diastolik terjadi secara bermakna (p=0.005) pada kelompok GRL (median -8,0; 20-(-24)) dibandingkan kelompok GB (-2,2±6,8). Tidak ada perbedaan bermakna perubahan kadar angiotensin II plasma, Na dan K urin 24 jam pada kedua kelompok GRL dan GB. Kesimpulan: GRL yang rendah Na dan tinggi K aman digunakan dan bermanfaat sebagai pengganti garam biasa bagi penderita hipertensi esensial derajat 1 usia 25-59 tahun tanpa memengaruhi kadar angiotensin II plasma, Natrium dan Kalium urin.
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Basic Health Research 2007 and 2013, Indonesian population aged over 10 years consume high daily salt. Basic Health Research 2013 and 2018 showed hypertension' prevalence in Indonesian adults increased from

25.8% to 34.1%. Indonesia is one of the biggest producers of red seaweed, Euchema cottonii in the world, but there is no research about the potential of this seaweed as a substitute for salt. Aim of this study to evaluate the effect of replacing ordinary salt with seaweed salt of Euchema cottonii with lower Na content than ordinary salt in an effort to lower blood pressure in subjects with grade 1 essential hypertension. The first phase of the study was to produce seaweed salt (GRL) which is safe and has a salty taste of ordinary salt (GB), it was carried out in the food production unit at the hospital, from December 2016 to March 2017.

The sensory test results by 9 panelists were used to determine concentration of GRL used in phase two. The second stage of the study was a double blind randomized comparison clinical trial. Subjects were interviewed with a food frequency questionnaire, and a salty sensory test of GRL compared to GB was conducted. Anthropometry, blood pressure, plasma angiotensin II, serum CRP, fasting blood sugar, serum creatinine, complete urine examination and levels of Na, K and creatinine in 24 hours urine were measured. Subjects were evaluated for complaints, and their blood pressure were measured every week for four weeks. Seaweed from Saumlaki, Maluku was selected based on a safety analysis: metal, mold and bacterial contamination. The salty taste test by the panelists obtained GRL, composition of seaweed powder and ordinary salt powder with a ratio of 1:1, and has a salty taste that was not significantly different from GB ($p=0.332$).
Mineral analysis found that GRL contains lower Na levels with higher K levels than GB. Clinical trials on 62 subjects were conducted at one hospital and three health centers in Jakarta from December 2017 to December 2019. After four weeks of treatment, it was found that there was a significant difference in the decrease of systolic blood pressure ($p=0.004$) from GRL group's subjects ((-15,3±9,7) compared to GB group's subjects (-8,0±9,2). There was also a significant difference in the decrease of diastolic blood pressure ($p=0.005$) from GRL group's subjects (median -8,0; 20-(-24)) compared to GB group's subjects (-2,2±6,8). There was significant difference in changes in plasma angiotensin II levels, Na and K from 24 hours urine in both GRL and GB groups. Conclusion: GRL which is low in Na and high in K is safe to use and is useful as a substitute for GB for patients with grade 1 essential hypertension aged 25-59 years without affecting plasma angiotensin II, urinary Na and K.