

# Pengaruh pemberian tempe terhadap kadar glukosa darah penderita diabetes melitus tipe 2 usia lanjut = The effect of tempe administration on plasma glucose level in elderly patients with type 2 diabetes mellitus

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## Abstrak

Tujuan penelitian adalah diketahuinya pengaruh pemberian 100 gram tempe per hari selama empat minggu terhadap kadar glukosa darah pada penderita diabetes melitus (DM) tipe 2 usia lanjut (usila). Penelitian ini merupakan uji klinis paralel, acak, terbuka. Subyek penelitian adalah 30 orang penderita DM tipe 2 usila yang tinggal di empat panti wredha di Jakarta. Alokasi acak dengan cara randomisasi blok dilakukan untuk membagi subyek menjadi dua kelompok. Seluruh subyek dibesikan pengaturan diet DM sesuai PERKENI. Kelompok sebanyak 16 orang yang diberikan 100 gram tempe, sedangkan kelompok K sebanyak 14 orang yang diberikan kacang-kacangan pengganti tempe. Data yang diambil meliputi usia, jenis kelamin, berat badan dan indeks massa tubuh (IMT), serta data asupan dengan metode food record. Pemeriksaan kadar glukosa darah puasa (GDP) dan glukosa darah 2 jam postprandial (GDPP) dilakukan pada awal dan akhir perlakuan. Analisis data menggunakan uji t tidak berpasangan dan uji Mann Whitney dengan batas kemaknaan 5%. Subyek yang mengikuti penelitian secara lengkap sebanyak 27 orang yang terdiri dari 15 orang kelompok perlakuan dan 12 orang kelompok kontrol. Rata-rata usia subyek adalah 70,4:9,5 tahun. Mayoritas subyek (63,5%) adalah perempuan, dan hampir setengah jumlah subyek mempunyai status gizi normal berdasarkan IMT. Sebagian besar (80%) subyek belum menerima obat DM. Pada awal penelitian, usia, jenis kelamin, IMT, asupan kalori dan zat gizi subyek tidak menunjukkan perbedaan bermakna ( $p>0,05$ ). Seluruh subyek tidak dapat mematuhi anjuran diet DM yang dibicarakan, asupan lemak subyek tinggi sedangkan asupan secara rendah. Setelah perlakuan terlihat kecenderungan penurunan kadar GDP dan peningkatan kadar GDPP yang tidak berbeda bermakna antara kelompok P dan K. Pemberian 100 gram tempe selama empat minggu tidak menurunkan kadar GDP dan GDPP.

.....Aim of this study was to investigate the effect of daily intake of 100 gram tempe for four weeks on plasma glucose level in elderly patients with type 2 diabetes mellitus. This study was a parallel randomized clinical trial. Subjects were 30 diabetic elderly living in four nursing homes in Jakarta. In the study, subjects were assigned into two groups using block randomization. All subjects had to take diabetic regimen with calorie and macronutrient following diabetic recommendation diet. The treatment group (n=16) received tempe, while control group (n=14) received legumes other than tempe. Data collection included age, sex, body weight, body mass index, and nutrient intake using 3x24 hours food records. In addition isotlavone intake was also assessed. Fasting plasma glucose levels (FPG) and 2 hours postprandial plasma glucose (PPPG) levels were assessed before and after intervention. Unpaired t-test and Mann Whitney were used to analyse data with the 5% significance level. There were 27 subjects completed the study: 15 of treatment group and 12 of control group. Mean of age were 70.4 :L 9.5 years. Majority (63.5%) of subjects were female, and almost half subjects had normal BMI. About 80% of subjects did not use diabetic medication. At base line age, BMI, sex, use of diabetic medication, calorie and macronutrient intake were comparable. All subjects could not comply with diabetic regimen: high fat and low fiber intakes. Fat, fiber and isotlavone intake were significantly higher in treatment group compared to control group. Decrease in FPG and increase

in PPG after intervention were observed but were statistically insignificant. In conclusion, daily intake of 100 gram tempc for four weeks did not decrease PPG and PPG.