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Six weeks ingestion of polyphenol-rich Urtica dioica and Sideritis scardica does not influence endothelial function, blood pressure or lipid profile in patients with coronary artery disease or at high cardiovascular risk: a randomised controlled trial

Epidemiological studies suggest that a diet rich in fruit and vegetables is associated with a reduction in the risk of cardiovascular disease. Mountain tea (Sideritis scardica) and nettle (Urtica dioica) are rich dietary sources of polyphenolic compounds that have the potential to improve endothelial function and reduce cardiovascular risk. The purpose of this study was to determine the effects of nettle and mountain tea ingestion on vascular function in subjects with coronary heart disease or at high cardiovascular risk. Methods. In a randomized, controlled trial (3 groups, n=27 per group) we investigated the effects of mountain tea and nettle tea on flow mediated vasodilation (FMD), lipid profile and blood pressure over the 6-week period. Results. Ingestion of nettle tea resulted in significantly lower FMD (p=0.037) compared with baseline but the difference was not significant when compared with the control group. There were no significant improvements in blood pressure or lipid profile after ingestion of mountain or nettle tea. Conclusion. Over a 6 week period, consumption of moderate quantities of mountain or nettle tea does not improve vascular function, blood pressure or lipid profile in individuals with coronary artery disease or at high cardiovascular risk.

Key words: *polyphenols, flow mediated vasodilation, blood pressure, lipids.*

Background

Evidence from epidemiological studies and randomized controlled trials support the concept that some dietary flavonoids may have a potential role in reducing the risk of cardiovascular disease (CVD) (Stoclet J.C. et al., 2004; Hooper L. et al., 2008). The mechanisms for the cardio-protective effects of flavonoids are yet to be fully elucidated, but current evidence indicates that flavonoids may augment the production of endogenous nitric oxide (NO) (Heiss C. et al., 2003; Schroeter H. et al., 2006; Loke W.M. et al., 2008), a critical regulator of endothelial function (Kleinbongard P. et al., 2006). Endothelial dysfunction is associated with the development of atherosclerosis, a precursor to CVD and is characterized by a reduction in the bioavailability of NO. Endothelial dependent flow mediated vasodilation (FMD) is almost exclusively NO dependant and is a well-recognized and validated tool for the evaluation of endothelial function (Corretti M.C. et al., 2002). Furthermore, FMD is impaired by other risk factors for CVD such as age, smoking, hypertension and hypercholesterolemia (Celermajer D.S. et al., 1994; Zizek B. et al., 2001).

There is a substantial body of scientific evidence to show that flavonoid-rich foods/beverages and extracts favourably influence endothelial function, blood pressure and lipid profiles in both populations with manifest cardiovascular and coronary artery disease (CAD) (Whelan A.P. et al., 2004; Lekakis J. et al., 2005; Widlansky M.E. et al., 2007; Flammer A.J. et al., 2012) and healthy individuals with or without cardiovascular risk factors (Grassi D. et al., 2005; Faridi Z. et al., 2008; Barona J. et al., 2012; Bondonno C.P. et al., 2012). In a recent meta-analysis of trials involving the ingestion of tea by both healthy individuals and those in a diseased state, a median daily intake of 500 ml tea, (~2–3 cups), increased FMD by 2.6% compared with placebo, a relative increase of about 40% when compared with the average basal FMD of 6.3% measured under placebo or baseline conditions (Ras R.T. et al., 2011). Flavanol-rich cocoa and dark chocolate is undoubtedly the main food source to consistently show significant improvements in endothelial function and blood pressure lowering properties. The authors of two recent meta-analyses of randomized controlled trials report that chocolate and cocoa lower blood pressure during the chronic phase of ingestion (Taubert D. et al., 2007; Hooper L. et al., 2008) and improve FMD assessed endothelial function after both acute and chronic intakes (Hooper L. et al., 2008). Moreover, the plasma concentration of epicatechin (a monomeric flavanol present in both cocoa and tea) has been shown to correlate with increases in FMD (Schroeter H. et al., 2006), indicating that epicatechin is an important bioactive constituent of flavanol-rich foods.

Many traditional foods of Black Sea area countries contain locally grown fruit and vegetables that are rich in bioactive compounds. Mountain tea or mursal tea (Sideritis scardica) is a perennial herbaceous plant that is typically consumed as a medicinal tea. Nettle (Urtica dioica) on the other hand, is a constituent of a variety of dishes, including soups and borsches. Widespread consumption of mountain tea and nettle is uniquely associated with countries in the Black Sea area. Although there are many reports describing the use of these plants in folklore medicine, very little scientific evidence exists regarding

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the potential of these plant foods to benefit human health as components of foods and diets. The aim of this study was to investigate the effects of regular ingestion of mountain tea and nettle tea on FMD assessed vascular function and other risk markers for CVD in individuals with known CAD or at high risk of CVD.

Methods

Participants and study design

Ninety six men and women attended clinical screening to assess eligibility for participation in this study (Figure).

All potential participants were assessed for eligibility on the basis of a health questionnaire, physical examination and the results of clinical laboratory tests. Eligible participants with CAD or high risk CVD were defined as follows: either 1) history of typical angina chest pain with positive results of exercise testing; prior myocardial infarction documented by markers of myocardial necrosis; >50% stenosis of one or more coronary arteries on angiogram; or 2) history of diabetes and/or three or more of the following: blood pressure >140/90 mm Hg or on anti-hypertensive medication; current smoker; family history of CVD in a first degree relative aged <55 and 65 years for male and female relative respectively; hyperlipidaemia defined as total serum cholesterol and low density lipoprotein (LDL) cholesterol >5.12 and 3.15 mmol/L respectively. Those on stable and optimal doses of cardiovascular medication for at least 4-weeks prior were also eligible to participate. Those with severe hypertension or angina, cardiac arrhythmias, renal failure, hepatic disease, diabetes requiring insulin therapy, known HIV, alcohol or drug abuse were excluded from this trial. Of the ninety six participants screened, eighty one were randomized to treatment and completed the 6 week intervention. The baseline characteristics of the eighty one participants are shown in Table 1. The study was conducted at the Zakarpattya Regional Clinical Cardiology Dispensary in Uzhhorod, Ukraine and all participants gave written informed consent. The study protocol was approved by the Uzhhorod National University Research Ethics Committee.

The study was a randomized, parallel design (3 groups) clinical trial investigating the effects of mountain tea and nettle on endothelial dependant FMD of the brachial artery, blood pressure and cholesterol. Participants were randomized to receive either: 2 g dried mountain tea infused in 200 ml hot water twice per day; 3 g dried nettle infused in 200 ml hot water twice per day or 200 ml hot water twice per day as a placebo control. Each treatment was ingested over a period of 6 weeks. FMD of the brachial artery, blood pressure and lipid profile was measured at the start and end of the treatment period.

Collection and analysis of plant materials

Sideritis scardica was collected from several locations on Ilinska Mountain on the Macedonia/Bulgaria border. After collection, the plants were air dried under a wooden roof out of direct sunlight for a period of two months (traditional method). Samples of nettle were collected from household plots in the village of Synevir in the Transcarpathian mountains, Ukraine and prepared by oven drying at 50–70 °C for 2–3 h. Dried materials were subsequently packed into teabags by a packaging company («HiPP Uzhgorod, GmbH»), Ukraine, prior to use in this study.

Total polyphenol content of the nettle and mountain teas were determined from samples that were prepared in the same way as ingested by participants on this study. In brief, triplicate samples of dried nettle (3 g) and dried sideritis (2 g) were each infused with 200 ml hot water and left to stand for 15 min. Sub-samples of the infusion were then extracted with methanol prior to centrifugation (10 min;17,000 g). Samples were injected onto a Luna C18 (2) column (250×4.6 mm; Phenomenex) connected to an HPLC-DAD-MSD system (Agilent 1100) and eluted at a flow rate of 1 ml•min^{-1}. Samples were eluted with a gradient of increasing solvent B (0.1% formic acid in acetonitrile) from solvent A (0.1% formic acid in water) as follows: at T=0, solvent B=0%; increasing solvent B to 17% at 15 min; 25% at 22 min; 35% at 30 min; 50% at 35 min; 100% at 40 min which was held until 50 min before returning to 0% B for 10 min prior to injection of the next sample. Quantification of polyphenols was achieved using response factors from the commercially available standards, chlorogenic acid and rutin. Unidentified phenolics were quantified against chlorogenic acid as the reference standard.

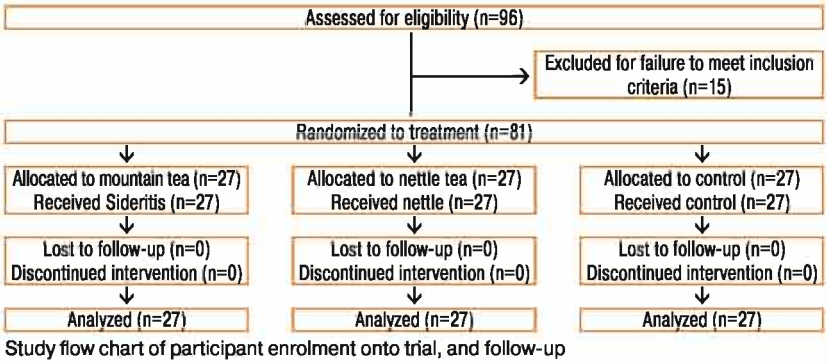
The total polyphenolic content of a 3 g nettle infusion was 125 mg. The total polyphenolic content of a 2 g mountain tea infusion was 56 mg. The twice daily infusions therefore provided a total daily polyphenolic intake of 250 mg and 112 mg; nettle and mountain tea, respectively. The phenolic composition of the teas is described in Table 2.

Study procedure

Participants were randomized to mountain tea (n=27), nettle tea (n=27), and water (n=27) twice daily (once in the morning and once in the evening) for 6 weeks. Participants were instructed to add one tea bag to 200 ml hot water and leave for 15 min before ingestion. Each tea bag contained either 2 g dried mountain tea or 3 g of dried nettle. Compliance to treatment was determined by counting the number of un-used tea bags returned at the end of the study.

Participants were assessed at the start (baseline) and end of the 6-week intervention period. Prior to assessment participants were asked to fast for an 8–12 h period. Additionally, exercise and ingestion of substances that might affect FMD such as caffeine, high-fat foods, vitamin C and tobacco use were prohibited for at least 4 to 6 h before assessment. At each visit, blood pressure, height and weight and FMD were measured. Venous blood was collected and samples analysed

Figure



Study flow chart of participant enrolment onto trial, and follow-up

Table 1 **Baseline characteristics of the 81 men and women with CAD or high CVD risk who completed the 6-week trial**

Characteristic	Nettle tea (n=27)	Mountain tea (n=27)	Water (n=27)
Male/female ratio	1.45	1.45	1.08
Age (years)	58±7	59±6	60±6
Body mass index (BMI) (kg/m^2)	30±5	29±4	28±5
CAD [n (%)]	20 (74)	19 (70)	17 (63)
Diabetes/impaired glucose [n (%)]	8 (30)	10 (37)	8 (30)
Hyperlipidaemia [n (%)]	16 (59)	15 (56)	13 (48)
Arterial hypertension [n (%)]	24 (89)	23 (85)	25 (93)
Smoker [n (%)]	5 (19)	4 (15)	6 (22)
Medicated with acetylsalicylic acid [n (%)]	25 (93)	23 (85)	23 (85)
Medicated with statins [n (%)]	21 (78)	22 (82)	25 (93)
Medicated with ACE inhibitors [n (%)]	13 (48)	9 (33)	11 (41)
Medicated with ARB [n (%)]	6 (22)	5 (19)	8 (30)
Medicated with beta-blockers [n (%)]	22 (82)	24 (89)	23 (86)
Medicated with calcium channel blockers [n (%)]	7 (26)	12 (44)	10 (37)
Medicated with diuretics [n (%)]	11 (41)	9 (33)	11 (41)

Mean±standard deviation (SD) unless stated otherwise; ACE – angiotensin-converting enzyme; ARB – angiotensin II receptor blockers.

for total cholesterol, triglycerides and high density lipoprotein (HDL) cholesterol.

Assessment of endothelial function

Endothelium dependant FMD was assessed after a 10 min period of rest in a quiet, temperature controlled room (20–25 °C). Measurements were undertaken by the same ultrasonographer throughout the entire study using a 7 MHz (Philips Envisor C) linear array transducer. The brachial artery was imaged approximately 5 cm above the antecubital fossa in the longitudinal plane. A segment with clear anterior and posterior intimal interfaces between the lumen and vessel wall was selected for continuous 2D grayscale imaging. The same segment was used for all examinations throughout the study. The baseline diameter of the brachial artery was measured with caliper from longitudinal images in which the lumen-intima interface is visualized on the near (anterior) and far (posterior) walls. Arterial occlusion was created using a 12.5 cm wide cuff inflation in the upper arm to suprasystolic pressure (50 mmHg above systolic pressure) to occlude arterial inflow for 5 minutes. The hyperemic diameter of the artery was recorded for 2 min after cuff deflation. Baseline and hyperemic brachial artery diameters were recorded and the absolute difference and percent change in diameter calculated. All measurements were done at end-diastolic frames.

Blood pressure

Blood pressure was determined from the mean of duplicate measurements using an aneroid sphygmomanometer with the participant in the sitting position and after a 10-minute period of rest.

Lipid profile

Blood was drawn into sterile dry tubes. Total cholesterol, HDL cholesterol and triglycerides were determined using standard protocols at the clinical laboratory of Zakarpattya Regional Clinical Cardiology Dispensary. LDL-cholesterol levels were calculated using Friedwald's formula where LDL=total cholesterol — HDL cholesterol — triglycerides × 0.456.

Data analysis

Statistical analysis was performed using SPSS 17.0 software and data are presented as mean±SD. The data were tested for normality using the Lilliefors test. Differences within treatment groups on FMD, blood pressure and lipids were assessed using Wilcoxon-rank sum test. To assess between-group effects of treatment, Mann-Whitney U test was performed. Differences were considered significant when $p<0.05$.

Results and discussion

In this randomized, parallel design, placebo controlled trial a total of 81 men and women (n=27 per treatment group) with known CAD or high cardiovascular risk completed the study. Participant characteristics were similar between groups at baseline (see Table 1); age ranged from 46 to 70 years and BMI from 19.7 to 40.9 kg/m². Adherence to treatment was high with 96 and 94% (nettle and mountain tea respectively) of tea consumed as determined by return of un-used tea bags.

There were no significant differences in FMD, blood pressure or cholesterol concentrations between the 3 groups at baseline. After 6 weeks ingestion of nettle tea FMD was significantly lower (p=0.037 (unadjusted)) compared with baseline but the difference was not significant when compared with the control group. Despite an increase in FMD after 6 weeks ingestion of mountain tea from 6.90±2.81% to 8.04±2.61% the difference did not reach the level of significance. There were no beneficial effects on blood pressure or cholesterol concentrations after 6 weeks ingestion of either mountain or nettle tea (Table 3).

The main finding of this randomized placebo controlled clinical trial was that neither mountain tea nor nettle tea beneficially altered endothelial function or CVD risk as assessed by FMD, blood pressure and lipid profile in individuals with established CAD or at high CVD risk.

The nettle and mountain teas fed to participants on this study provided a total daily polyphenolic intake of 250 and 112 mg polyphenols respectively; a dose equivalent to 625 mg/L and 285 mg/L, respectively. The major class of flavonoid consumed from the nettle tea were the flavonols (quercetin glycosides) and from mountain tea acylated derivatives of flavonoid diglycosides (see Table 2). The total polyphenol content of the nettle tea consumed by participants in our study compares favourably with that of green and black tea (Camelia sinensis) which provides on average 992 mg/L and 591 mg/L, respectively (Astill C. et al., 2001). Whilst black and green tea do contain some flavonols (~2 and 3% of total polyphenol content, respectively) the major contributor to total flavonoid content in green and black tea are the monomeric and polymeric flavanols (Hodgson J.M., Croft K.D., 2010).

Several human intervention trials have investigated the acute and chronic effects of both green and black tea on endothelial function in humans (Duffy S.J. et al., 2001; Kim W. et al., 2006; Alexopoulos N. et al., 2008; Jochmann N. et al., 2008; Grassi D. et al., 2009) and most have shown significant improvements in FMD response post ingestion. For example, after ingestion of 5 g green and black tea by healthy individuals (amounts similar to that ingested by participants in our study), FMD was shown to increase by 5% and 4.4% respectively, when compared with control (Jochmann N. et al., 2008). Moreover, black tea appears to improve FMD in a dose dependant manner (Grassi D. et al., 2009). The blood pressure and lipid lowering effects of green and black tea however are rather small. Despite similar concentrations of total polyphenol content between the nettle tea fed to participants in our study and that found in green and black tea, we did not observe a beneficial effect on FMD or other risk markers for CVD. In contrast to nettle and mountain tea, the major flavonoid component in green tea is the monomeric flavanols i.e. epicatechin, epigallocatechin gallate (EGCG) and epicatechin gallate (ECG) which in black tea are converted to theaflavins and thearubigins (polymeric flavanols) during the fermentation process (Menet M.C. et al., 2004). In fact, flavanols account for ~12–18% of the total polyphenol content of green tea (Hodgson J.M., Croft K.D., 2010). Like tea, dark chocolate and cocoa are also rich sources of monomeric flavanols (largely epicatechin) and consistently show improvements in FMD response in both the acute and chronic phase post ingestion, as highlighted in the recent meta-analysis of randomised controlled trials undertaken by L. Hooper and colleagues (2008). Neither nettle tea nor mountain tea fed to participants in our study contained flavanols. The lack of effects on FMD observed after ingestion of nettle and mountain tea rich in other flavonoids fed to participants in our study, combined with the convincing

Table 2 Polyphenolic content of nettle and mountain teas

Tea	Class of compound	Phenolic composition	Concentration (mg/g)
Nettle	Phenolic acids	Chlorogenic	14.5
		Diferuloyl/dicaffeoylquinic/p-coumaric/ sinapic/caffeic acid derivatives	19.1
	Flavonols	Quercetin glycosides	6.7
	Unidentified		1.5
Sideritis	Phenolic acids	Chlorogenic/feruloylquinic/triferulic isomers	5.0
	Phenylethanoid glycosides	Echinacoside/forsythoside A/alyssonoside/leucoseptoside	9.1
	Flavonoid diglycosides	Isoscutellarein/hypolaetin/luteolin	0.9
	Flavonoid acetylglycosides	Acylated derivatives of flavonoid diglycosides	11.4
	Unidentified		1.8

Table 3 Chronic effects of treatments on vascular function and biomarkers of CVD risk

Parameter	Nettle tea		Mountain tea		Water	
	Baseline	6 weeks	Baseline	6 weeks	Baseline	6 weeks
Baseline artery diameter (mm)	4.40±0.41	4.35±0.42	4.42±0.50	4.40±0.54	4.61±0.53	4.59±0.51
Hyperaemic artery diameter (mm)	4.74±0.42	4.69±0.47	4.73±0.56	4.75±0.57	4.92±0.63	4.88±0.58
Increase in diameter (mm)	0.34±0.19	0.34±0.16	0.31±0.13	0.35±0.12	0.31±0.17	0.29±0.16
Increase in diameter (%)	7.62±3.92	5.90±2.33*	6.90±2.81	8.04±2.61	6.68±3.54	7.05±3.28
Systolic blood pressure (mmHg)	141±12	141±16	145±16	142±17	147±17	143±14
Diastolic blood pressure (mmHg)	89±12	87±15	88±14	89±12	89±13	87±10
Total cholesterol (mmol/L)	5.61±1.22	5.27±1.10	5.41±1.25	5.16±1.02	5.59±1.36	5.52±1.20
HDL cholesterol (mmol/L)	1.18±0.30	1.19±0.33	1.30±0.39	1.31±0.30	1.23±0.30	1.26±0.31
LDL cholesterol (mmol/L)	3.46±1.07	3.21±1.04	3.20±1.25	2.96±0.99	3.42±1.26	3.43±1.08
Triglycerides (mmol/L)	2.13±0.72	1.92±0.58	1.97±0.82	1.98±0.80	2.04±1.01	1.81±0.79

n=27 per group; *significantly lower compared with baseline (p=0.037).

evidence of a beneficial FMD response from dark chocolate, cocoa and tea trials, supports the notion that it is the flavanols that are the major flavonoid responsible for the cardio-protective effects seen in these studies. These observations are substantiated by trials that demonstrate a correlation between plasma concentrations of epicatechin and EGCG and a beneficial FMD response (Schroeter H. et al., 2006; Widlansky M.E. et al., 2007).

As mentioned earlier, the major flavonoid in the nettle tea were the flavonols (quercetin), accounting for around 15% of the total phenolic composition. Like nettle, apples are also a relatively rich source of flavonols. In a recent human intervention trial with healthy individual's, apple ingestion was shown to favourably affect FMD in the acute phase post ingestion (Bondonno C.P. et al., 2012). However, apples have a similar flavanol profile to that of dark chocolate and cocoa, and it is possible that the apple flavanols were responsible for the observed effects in this study. Daily consumption of a quercetin supplement has been shown to significantly reduce systolic and diastolic blood pressure (Edwards R.L. et al., 2007) in hypertensive individuals. However, the dose required to achieve these reductions (730 mg/day for 28 days) was far higher than that fed to participants in our study or achievable through dietary means alone. Indeed, in agreement with our study, neither FMD nor other biological markers for CVD risk were significantly affected by daily ingestion of quercetin containing apples over a 4-week period by hypercholesterolemic individuals (Auclair S. et al., 2010).

To the authors knowledge this is the first clinical trial to assess the effects of mountain tea and nettle tea on FMD and other CVD risk markers in individuals with established CAD or its risk equivalent. Compliance to the treatments in this study was high but, contrary to many published studies which have shown long term favourable effects of tea and cocoa ingestion on FMD, blood pressure and cholesterol levels, we saw no significant improvements. Our study design and study population may account for some of these differences. For example, all participants in our study were on stable doses of guideline recommended standard treatments (including statins and ACE inhibitors) which have properties known to improve endothelial function, blood pressure and lipid profile. Thus, the 'standard treatment' of this study population could have masked any beneficial effects of the mountain and nettle teas. In a recent study assessing the effects of flavanols and soy isoflavones on CVD risk in postmenopausal women with type 2 diabetes on established statin therapy (Curtis P.J. et al., 2012), significant reductions in total cholesterol:HDL cholesterol ratio and LDL-cholesterol were observed. Whilst the authors conclude that this highlights the additional benefit of flavonoids to standard drug therapy, it is important to note that the number of study participants was much higher (93 patients) and the intervention period longer (1-year) compared with the current study. Furthermore, unlike many published trials reporting beneficial effects of dietary interventions on FMD response and other markers for CVD risk, our study was conducted with a heterogeneous population i.e. we did not limit smokers, diabetics or obese individuals. Lastly, in our study, participants ingested doses of dry herbs reflecting that which may be consumed on a typical basis; doses which may not have been sufficient to demonstrate a clinically significant systemic effect.

Conclusions

Our data show that over a 6 week period, ingestion of mountain tea and nettle tea rich in polyphenols do not improve vascular function, blood pressure or lipid profile in individuals with CAD or at high CVD risk.

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Conflict of interest

The authors declare no conflicts of interest.

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Вживання багатих на поліфеноли Urtica dioica та Sideritis scardica протягом 6 тиж не впливає на функцію ендотелію, артеріальний тиск і ліпідний профіль у пацієнтів з ішемічною хворобою серця чи високим серцево-судинним ризиком: рандомізоване контрольоване дослідження

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Резюме. *Результати епідеміологічних досліджень свідчать про те, що вживання достатньої кількості овочів та фруктів асоційоване зі зниженням серцево-судинного ризику. Гірський чай (Sideritis scardica) та кропива (Urtica dioica) багаті на поліфенольні сполуки, здатні покращувати функцію ендотелію та знижувати серцево-судинний ризик. Мета проведеного дослідження — визначення впливу споживання кропиви та гірського чаю на судинну функцію у осіб з ішемічною хворобою серця чи високим серцево-судинним ризиком. Методи. У рандомізованому контрольованому дослідженні у трьох групах (n=27 у кожній групі) оцінювали ефект гірського чаю та кропиви щодо потік-опосередкованої вазодилатації (ПОВ), ліпідного профілю та артеріального тиску впродовж 6-тижневого спостереження. Результати. Вживання чаю з кропиви привело до істотно нижчої ПОВ порівняно з вихідними значеннями (p=0,037), але різниця порівняно з контрольною групою була несуттєвою. Вживання гірського чаю чи кропиви не супроводжувалося суттєвим зниженням артеріального тиску або поліпшенням ліпідного профілю. Висновки. Вживання гірського чаю або кропиви в помірній кількості протягом 6 тиж не покращує судинну функцію, артеріальний тиск та ліпідний профіль у осіб з ішемічною хворобою серця або високим серцево-судинним ризиком.*

Ключові слова: *поліфеноли, потік-опосередкована вазодилатація, артеріальний тиск, ліпіди.*

Употребление богатых полифенолами Urtica dioica и Sideritis scardica на протяжении 6 нед не влияет на функцию эндотелия, артериальное давление и липидный профиль у пациентов с ишемической болезнью сердца или высоким сердечно-сосудистым риском: рандомизированное контролируемое исследование

Т.В. Чендей, Н.В. Ришко, Н.В. Бойко, П.А. Крун

Резюме. *Результаты эпидемиологических исследований свидетельствуют о том, что употребление достаточного количества овощей и фруктов ассоциировано со снижением сердечно-сосудистого риска. Горный чай (Sideritis scardica) и крапива (Urtica dioica) являются богатыми на полифенольные соединения, способны улучшать функцию эндотелия и снижать сердечно-сосудистый риск. Цель этого исследования — определение влияния употребления крапивы и горного чая на сосудистую функцию у лиц с ишемической болезнью сердца или высоким сердечно-сосудистым риском. Методы. В рандомизированном контролируемом исследовании в трех группах (n=27 для каждой группы) оценивали эффект горного чая и крапивы относительно поток-опосредованной вазодилатации (ПОВ), липидного профиля и артериального давления в течение 6-недельного наблюдения. Результаты. Употребление чая из крапивы привело к существенно более низким показателям ПОВ в сравнении с исходными значениями (p=0,037), но разница с контрольной группой была несущественной. Употребление горного чая или крапивы не вело к существенному снижению артериального давления или улучшению липидного профиля. Выводы. Употребление горного чая или крапивы в умеренном количестве в течение 6 нед не улучшает сосудистую функцию, артериальное давление и липидный профиль у лиц с ишемической болезнью сердца или высоким сердечно-сосудистым риском.*

Ключевые слова: *полифенолы, поток-опосредованная вазодилатация, артериальное давление, липиды.*

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Реферативна інформація

Лечение тестостероном: больше риска, чем пользы?

Как сообщает Управление по контролю за пищевыми продуктами и лекарственными средствами США (US Food and Drug Administration — FDA), с 31 января 2014 г. официально начато изучение потенциальных рисков уже одобренных препаратов, содержащих тестостерон. Подобный шаг предпринят в связи с поступившей информацией о повышении риска тяжелых кардиоваскулярных событий у лиц, проходящих терапию этими препаратами. В частности, в двух недавних работах выявили повышение риска возникновения инфаркта миокарда, ишемического инсульта и смерти.

В новом исследовании, результаты которого опубликованы 29 января 2014 г. в журнале «PLoS One», Вильям Финкл (William Finkle) и соавторы оценили риски, ассоциированные с терапией тестостероном на выборке из >50 тыс. мужчин. После 3 мес такой терапии риск инфаркта миокарда повысился на 36%. У мужчин в возрасте ≥65 лет за этот же период риск возникновения данного нежелательного явления повысился в >2 раза.

В возрастной группе <65 лет риск инфаркта миокарда повышался при наличии коронарного заболевания. Относительный риск в сравнении с контролем в данном случае составил 2,9 с достоверной межгрупповой разницей. Однако для добровольцев этой же возрастной группы, но без коронарных заболеваний в анамнезе, достоверных различий в отношении инфаркта миокарда не выявлено.

В официальном сообщении FDA не рекомендует пациентам прекращать лечение препаратами тестостерона без решения лечащего врача, а медицинским специалистам — взвесить все преимущества и риски такой терапии перед принятием решения. На данный момент терапия тестостероном разрешена к применению при низком уровне этого гормона в связи с недостаточной его выработкой яичками (генетические причины, на фоне химиотерапии), а также при нарушении функционирования структур центральной нервной системы, контролирующих продукцию тестостерона тестикулами.

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