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Risk/benefit ratio of polyphenols and ethanol contained in red wine

Submission date	Recruitment status	[_] Prospectively registered
06/04/2009	No longer recruiting	[_] Protocol
Registration date	**Overall study status**	[_] Statistical analysis plan
14/05/2009	Completed	[X] Results
Last Edited	**Condition category**	[_] Individual participant data
30/12/2020	Circulatory System	

Plain English summary of protocol
Not provided at time of registration

Contact information

Type(s)
Scientific

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Additional identifiers

EudraCT/CTIS number

IRAS number

ClinicalTrials.gov number

Secondary identifying numbers
AGL2006-14228-C03-01/ALI

Study information

Scientific Title
Risk/benefit ratio of polyphenols and ethanol contained in red wine: a randomised, crossover, controlled clinical trial of the scientific basis of the effects of moderate consumption of red wine on cardiovascular system

Study objectives
The benefit of the main components of red wine, namely ethanol and polyphenolic content is synergistic. No adverse events will be observed.

As of 23/05/2012, the target number of participants were updated from 125 to 73.

Ethics approval required
Old ethics approval format

Ethics approval(s)
Institutional Review Board of the Hospital Clinic of Barcelona approved

Study design
Open randomised crossover controlled clinical trial

Primary study design
Interventional

Secondary study design
Randomised controlled trial

Study setting(s)
Hospital

Study type(s)
Treatment

Participant information sheet
Not available in web format, please use the contact details below to request a patient information sheet

Health condition(s) or problem(s) studied
Arteriosclerosis

Interventions
Current interventions as of 23/05/2012
Intervention 1: 100 ml/day of gin
Intervention 2: 272 ml/day of red wine
Intervention 3: 272 ml/day of dealcoholised red wine

Initial wash-out period (15 days); first intervention - 28 days; second intervention - 28 days and third intervention - 28 days.

Previous interventions
Intervention 1: 100 ml/day of gin
Intervention 2: 290 ml/day of red wine
Intervention 3: 290 ml/day of dealcoholised red wine

Initial wash-out period (15 days); first intervention - 28 days; second intervention - 28 days and third intervention - 28 days.

Intervention Type
Other

Phase
Not Applicable

Primary outcome measure
1. Leukocyte adhesion molecule expression: lymphocyte and monocyte adhesion molecules on these cells will be marked with monoclonal antibodies (MAb) conjugated with fluorescein-isothiocyanate (FITC) and phycoerythrin (PE) by direct double immunofluorescence. The MAb of the adhesion molecules used will be: anti-CD11a (LFA-1), anti-CD40L, anti-CD11b (Mac-1) (Bender MedSystems Diagnostics, Vienna), anti-Sialyl Lewis (anti-CD15s) (Pharmingen, San Diego, CA), anti-CD49d (VLA-4) (Cytogmos). The monoclonal antibodies used to mark the T-lymphocytes will be anti-CD2 and monocytes, anti-CD14 (Caltag Laboratories, Burlingame, CA).
2. Soluble adhesion molecules: the following serum soluble adhesion molecules will be determined by enzyme-linked immunosorbent assay (ELISA) kits: soluble intercellular adhesion molecule-1 (sICAM-1), soluble vascular adhesion molecule 1 (sVCAM-1), sE-selectin, and sP-selectin, as well as soluble monocyte chemotactic protein-1 (sMCP-1), tumour necrotising factor-alpha (TNF-a), and interleukin B (IL-1B) (Immunotech)
3. Nuclear Factor Kappa B by western blot of peripheral blood mononuclear cells
4. Genes and proteins involved in inflammatory response will be determined by real time polymerase chain reaction (PCR) and Western blot analysis (MCP-1, TF and TFPI, as markers of inflammation and LRP and the LDL receptor as lipoproteic receptors). Moreover, the expression metalloproteases and their activity will also be analysed.

All variables (primary and secondary outcomes) will be measured at baseline and after each intervention period.

Secondary outcome measures
Current secondary outcome measure(s) as of 23/05/2012
1. Medical record: a complete medical record will be obtained from all participants, which included data on alcohol intake, smoking and dietary habits. Blood pressure and heart rate will be measured with an electronic apparatus Omron HEM-705CP (Netherlands). Plasma nitric oxide will be measured by a chemiluminescence detector in a NO analyzer (Sievers Instruments, Inc., Boulder, CO).
2. Nutrition assessment and general analyses: all participants will complete a validated nutritional questionnaire at baseline to determine the total quantity of calories ingested in the previous month as well as the proportion corresponding to carbohydrates, lipids and proteins. Overall nutrition will be determined by percentage of ideal weight, lean body mass and body mass index. Waist perimeter will be measured. The proteic nutrition will be determined on the basis of the following parameters: haemoglobin, total lymphocyte count, total proteins, albumin, prealbumin, transferrin and retinol-binding protein. Serum and intraerythrocytary folic acid concentrations will be measured, as well as serum vitamin A, B1, B12, C, E, B-carotenes, Zn,

Mg and Se concentrations. Moreover, the following measurements will also be obtained: red blood cell count, hematocrit, mean corpuscular volume, leukocyte count, glucose, creatinine, electrolytes, uric acid, transaminases, lactate dehydrogenase, alkaline phosphatase, gamma-glutamyl transpeptidase and bilirubin.
3. Coagulation tests: the following parameters will also be determined: platelet count, prothrombin time, and plasma fibrinogen
4. Serum lipoproteins and others: total cholesterol, triglycerides, cHDL, cLDL, Apo A1, Apo A2, Apo B, Apo C1, Apo C2, lipoprotein (a), insulin, adiponectin, growth hormone, leptin and homocysteine will be determined.
5. Diet and exercise monitoring: all participants will follow an isocaloric diet prepared according to their personal preferences. The diet will be strictly monitored during the study. Diet compliance will be assessed from 7-days diet records administered before each evaluation. This assessment will be administered by trained personnel. The foods ingested will be converted into nutritional values with the aid of the Professional Diet Balancer software (Cardinal Health Systems, Inc., Edina, MN). Physical activity will also be evaluated with the Minnesota Leisure Time Physical Activity questionnaire which has also been validated in Spain. Control of the diet and physical exercise will be carried out before and after each intervention, the same day on which the clinical examinations are performed and blood is withdrawn for immunologic studies.

All variables (primary and secondary outcomes) will be measured at baseline and after each intervention period.

Previous secondary outcome measure(s)
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All variables (primary and secondary outcomes) will be measured at baseline and after each intervention period.

Overall study start date
01/01/2007

Completion date
01/01/2010

Eligibility

Key inclusion criteria
1. Males between 55 and 80 years old
2. No documented cardiovascular disease (ischaemic heart disease - angina or recent or old myocardial infarction or previous or cerebral vascular accident, peripheral vascular disease)
3. Have diabetes mellitus or three or more of the following factors:
3.1. Current smoking
3.2. Hypertension
3.3. Hypercholesterolaemia (low density lipoprotein [LDL]-cholesterol greater than 160 mg/dl)
3.4. High density lipoprotein (HDL)-cholesterol less than 40 mg/dl
3.5. Overweight or obese (body mass index greater than 25 kg/m^2)
3.6. Family history of premature coronary heart disease
4. Participant gives signed informed consent

Participant type(s)
Patient

Age group
Senior

Sex
Male

Target number of participants
73 (Target number of participants finally were 73 recruited and 6 withdrew before completing the study)

Total final enrolment
67

Key exclusion criteria
Current exclusion criteria as of 23/05/2012
1. Previous history of cardiovascular disease (ischaemic heart disease - angina or recent or old myocardial infarction, cerebral vascular accident, or peripheral vascular disease)
2. Any severe chronic disease
3. Alcoholism
4. Other toxic abuse
5. Human immunodeficiency virus infection

6. Malnutrition
7. Acute infectious diseases
8. Customary use of vitamin supplements

Previous exclusion criteria
1. Previous history of cardiovascular disease (ischaemic heart disease - angina or recent or old myocardial infarction, cerebral vascular accident, or peripheral vascular disease)
2. Any severe chronic disease
3. Alcoholism
4. Other toxic abuse

Date of first enrolment
01/01/2007

Date of final enrolment
01/01/2010

Locations

Countries of recruitment
Spain

Study participating centre
Hospital Clinic de Barcelona
Barcelona
Spain
08036

Sponsor information

Organisation
Spanish Ministry of Science and Innovation (Ministerio de Ciencia e Innovación [MICINN]) (Spain)

Sponsor details
C/Albacete, 5
Madrid
Spain
28027

Sponsor type
Government

Website
http://web.micinn.es/

Funder(s)

Funder type
Government

Funder Name
Spanish Ministry of Science and Innovation (Ministerio de Ciencia e Innovación) (Spain) (ref: AGL2006-14228-C03-01/ALI)

Results and Publications

Publication and dissemination plan
Not provided at time of registration

Intention to publish date

Individual participant data (IPD) sharing plan

IPD sharing plan summary
Not provided at time of registration

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article	LPS results	01/05/2013	30/12/2020	Yes	No
Results article	atherosclerosis marker results	01/02/2012	30/12/2020	Yes	No
Results article	blood pressure results	01/02/2012	30/12/2020	Yes	No
Results article	glucose and lipid metabolism results	01/04/2013	30/12/2020	Yes	No
Results article	gut microbiota results	01/06/2012	30/12/2020	Yes	No