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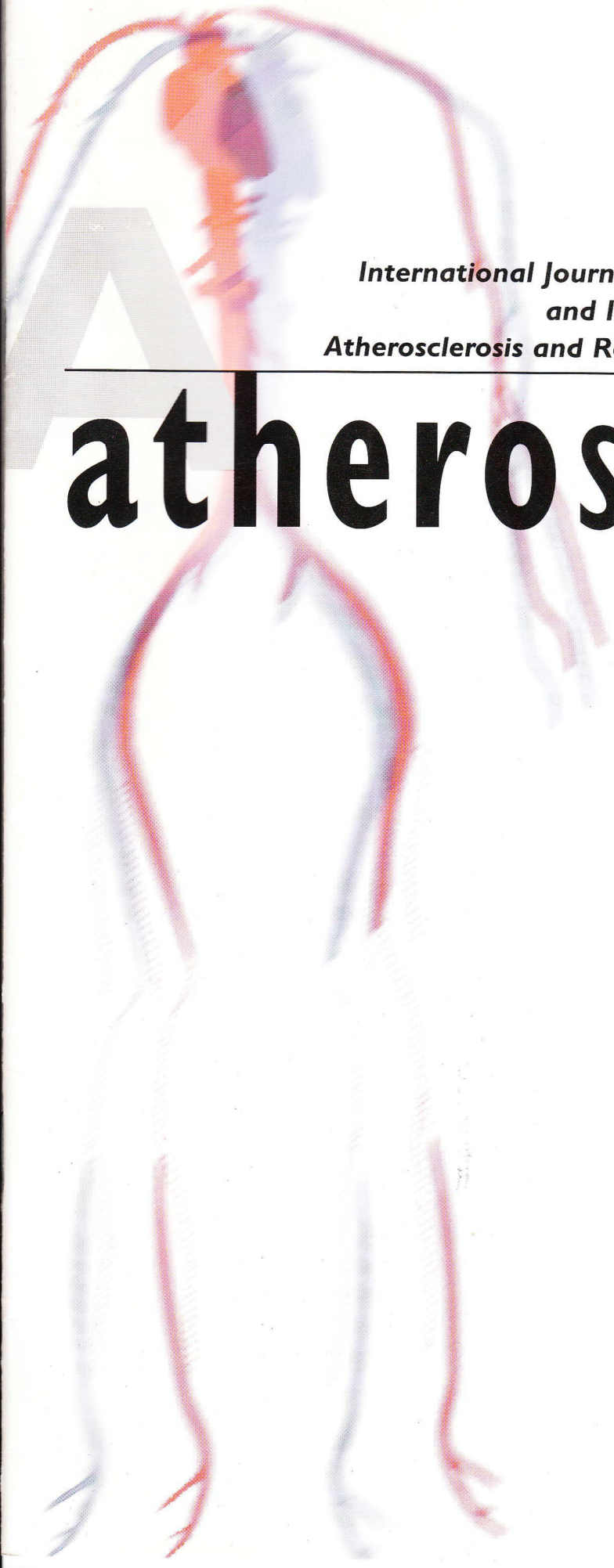

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TRIGLYCERIDES AS PREDICTOR OF TISSUE PLASMINOGEN ACTIVATOR AND OF TISSUE PLASMINOGEN ACTIVATOR INHIBITOR TYPE 1 LEVELS IN NON OBESE NORMO AND HYPERTRIGLYCERIDEMIC SUBJECTS

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The fibrinolytic system is regulated by the balance between the levels of tissue-type plasminogen activator (t-PA) and plasminogen activator inhibitor 1 (PAI-1). Disturbances of the fibrinolytic system has been described in many atherotrombotic conditions, due, in part to the interaction of fibrinolytic variables with lipoproteins and/or insulin or insulinlike peptides. In this study we have investigated the relationship between fasting levels of lipids, insulin and fibrinolytic variables in normo (NTG) and hypertriglyceridemic (HTG) subjects attending a Lipid Clinic. PAI-1 and t-PA antigen were higher in HTG than in NTG subjects. In the multivariate analysis several significant correlations between fibrinolytic and metabolic variables were found. At the stepwise multiple regression analysis, however, triglycerides were the only main predictor of t-PA (r^2=0.13, p<0.0001) whereas both insulin and triglycerides were significant and independent predictors of PAI-1 antigen levels (r^2=0.22, p<0.0001). To investigate the relationship between triglycerides, insulin and PAI-1 the subjects were then categorized in tertiles according to their levels of TG and insulin. PAI-1 antigen levels gradually increased with rising levels of TG within all strata of insulin. In contrast the increase of PAI-1 with rising of insulin levels was evident in the highest tertile of triglycerides only. In addition, subjects in the lowest tertile of TG and insulin had the lowest PAI-1 antigen levels, while subjects in the highest tertiles of TG and insulin had the highest levels of PAI-1. This study indicates that triglycerides is the only independent predictor of t-PA antigen levels, whereas triglyceride and insulin are independent predictors of PAI-1 antigen levels.

THE BRISIGHELLA STUDY: DIETARY FAT CONSUMPTION AND CALCIUM INTAKE.

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The decreased dietary intake in animal fats and cholesterol is often thought to be associated with a indeguate assumption of calcium and D-vitamin.

The aim of our study is to describe the 1980-1992 trend of daily intakes of calcium, phosphorus, and vitamin D in Brisighella, a town in North-eastern Italy, in order to analyze these intakes in terms of sex and age, before and after the attuation of a nutritional education program (NEP) aimed at reducing cardiovascular risk factors, mainly plasma cholesterol and triglicerides. The dietary habits of the Brisighella inhabitants were monitored every 4 years by an ad hoc dietary record sheet(s). Participants filled in the questionnaire, meal by meal and day by day for a week. A total of 1880, 1431, 2218 and 1868 seven-day-questionnaires were analyzed for the 4 follow-up (1980, 1984, 1988, 1992). Both in males and females the mean calcium intake was very low in 1980 in all age classes: males= from 748 (25-65 yr) to 695 (>65) mg/24; females=680 (25-50 yr), 718 (51-65) and 670 (>65) mg/24h; similar values were found in 1984 (m=770 and 766, f= 688, 688, 689 mg/24h respectively). Moreover, in 1980, 22.5% of older males and 21.5 % of older females had a multiple deficit in food intake of calcium and D vitamine. The mean calcium intake registred 2 years after the NEP started (1988) was significantly higher in all age classes: m=877 (p<0.0001 vs 1984) and 1003 (p=0.008) mg/24h; f= 923 (p<0.001), 860 (p<0.001) and 767 (p=0.015) mg/24h). In 1992, 3 years after the conclusion of NEP, calcium intake dropped in all age classes (m= 763 and 717 mg/24h, f=685, 671 and 672 mg/24h). Vitamin D mean intake was also lower than the RDA, ranging from 66 to 127 IU/24h at the various controls, and variations after the 1988 control were slight. Data from the Brisighella study demonstrated that: a) spontaneous calcium and vitamin D intakes are below recommended levels, particularly in the elderly, also in areas with an high economic level, and that b) nutritional counselling, shown to be effective in reducing serum lipids and specifically aimed at decreasing the excessive consumption of saturated fats and cholesterol, not only did not reduce calcium intake, but actually increased it.

CHOLESTEROL ESTER TRANSFER PROTEIN (CETP) IN CENTENARIANS.

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Cholesterol ester transfer protein (CEIP) is a regulating factor for the distribution of cholesterol ester among the plasma lipoproteins; its transfer activity seems to be proatherogenic. Several reports indicate that hyperlipidaemic subjects have often high CETP activity levels; patients with a genetic deficiency of CETP have HDL cholesterol high levels as well as decreased LDL cholesterol but, nevertheless, this deficiency appears to be a CHD independent risk factor.The CETP genetic deficency has been also associated with the longevity although other studies have denied this.The aim of our study is to verify if some CETP activity differences exist in two extreme age groups: young subjects (Y) and centenarians (C).Methods- We studied 53 subjects (Y) 18 - 34 years old aged (exclusion criteria: treatment with lipid-lowering drugs or with steroids, excessive alcohol intake, diabetes mellitus and gastroenteric, liver, coronary heart diseases) and 20 centenarians of Emilia-Romagna Region. These hematologic parameters were examinated: total cholesterol (CT), LDL and HDL cholesterol, triglycerides (TG), LnLp(a) and CETP activity.The CETP activity was determined by a fluorescent technique (WAK-CHEMIE MEDICAL GMBH kit that includes a NBD-CE donor and an acceptor particle; the CETP source is the plasma sample). Regard to the assay precision, we obtained a 3.7 CV%. Then the young subjects (Y) were subdivided in normolipidemics (N) [CT<200 mg/dl, TG<200 mg/dl, HDL-CT>40 mg/dl] and hyperlipidaemics (H). **Results and Conclusion** - In the table we show some of our results:

	C	N	H
CT (mg/dl)	189 ± 46	165 ± 21	227 ± 70
HDL-CT (mg/dl)	44 ± 14	52 ± 9	48 ± 15
LDL-CT (mg/dl)	118 ± 36	89 ± 24	151 ± 92
TG (mg/dl)	113 ± 36	85 ± 21	119 ± 46
Ln Lp(a)	1.3 ± 0.6	1.0 ± 0.6	1.5 ± 0.5
CETP (pmolesNBD-CE transferred /3hr)	49 ± 4	46 ± 8	55 ± 10
	C vs	p<0.05	p<0.01

The distributions of CETP activity in these groups (C, N, H) are shown in the figure:

The CETP activity mean value is significantly different between centenarians and the other groups. In the young group the CETP activity distribution is bimodal: the curve of N group is shifted to the left while the other one to the right. The distribution in Centenarians is normal and the corresponding curve is placed between the others two. The three curves cross one another and define an area, whose significance opens a lot of interesting hypotheses.

NEAR-INFRARED SPECTROSCOPY, SCINTIGRAPHY AND TRANSCUTANEOUS OXIMETRY IN THE DIAGNOSIS OF PERIPHERAL ARTERIAL DISEASE.

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Near-Infrared Spectroscopy (NIRS), sensible to tissue haemoglobin saturation (THS), and planar scintigraphy, measuring limb blood flow, may be useful in the assessment of peripheral ischaemia. This study evaluated NIRS and scintigrafic behaviour in 12 PAOD patients (8 stage II; 4 stage III and IV) as diagnosed by echo-Doppler and treadmill test. Stage II patients and healthy age- and sex-matched controls underwent leg scintigraphy (^{99}mTcMIBI;20mCi-iv), NIRS and transcutaneous oxygen tension measurements ($TcPO_2$) at rest and after bycicle exercise (40-80 w/5'); these parameters were evaluated in stage III and IV patients only at rest.Stage III and IV had a significantly (p<0.001) lower THS (54±2%) and $TcPO_2$ (28±3mmHg) baseline values compared to controls (69±5%;51±4mmHg). During exercise there was in stage II a significant (p<0.01) decrease in THS(-20±3%) and $TcPO_2$ values (-21±2mmHg). Recovery times to basal values were significantly (p<0.01) longer in patients vs controls (THS 4±1.8mins vs 2.4±1.2mins; $TcPO_2$ 5.4±1.2mins vs 3.8±1.5mins; correlation r=0.67). A significant (p<0.05) decrease in photocounts was observed at rest in stage III and IV and after exercise stress in stage II patients. These preliminary results seem to indicate near infrared spectroscopy and ^{99}mTcMIBI scintigraphy distinguish between healthy subjects and PAOD patients and appear suitable for staging peripheral ischaemia.