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Abstracts

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EFFECT OF DIETARY C18 FATTY ACIDS ON PAI-1 PLASMA LEVELS IN HEALTHY SUBJECTS. I.A. Huisveld[1], P.L.Zock[3], M.B.Katan[3], J.E.H.Hospers[1], W.L.Mosterd[1] and B.N.Bouma[2].
Dept Physiology[1] and Dept Haematology[2], State Univ Utrecht and Dept Human Nutrition[3], Agricultural Univ Wageningen, The Netherlands.

There is increasing evidence that dietary measures not only influence the lipid metabolism but may also exert an effect on the haemostatic mechanism. Results of recent studies are suggestive for a close relation between the fibrinolytic system and serum lipid metabolism. PAI-1 is an important inhibitor of the fibrinolytic system and has been reported to correlate with triglycerides by some authors, however, others could not affirm this. Previous studies have demonstrated that modifications of fatty acid (FA) composition in a "western diet" may affect the serum lipid profile in a favourable way. We studied the effects of a high-elaidic acid (trans-C18:1) diet, a high linoleic acid (cis,cis-C18:2) diet and a high stearic acid (C18:0) diet on PAI-1 antigen levels in healthy volunteers.

Methods: The study was performed in a cross-over design by providing 30 females (mean age 24 yr, range 18-49 and mean BMI 21.5, range 17.9-27.5) and 26 males (mean age 25 yr, range 19-48 and mean BMI 21.5, range 18.5-26.0) with the 3 controlled diets given in random order for 3 weeks each. Participants were divided in six groups with almost identical numbers of either sex. Each group received the diets in different order, to eliminate residual effects of the previous diet or drift of variables over time. Blood was drawn in the morning hours after a 12 hr fast on the same time and the same day of the week. Plasma for PAI-1 antigen was obtained in CTAD tubes, centrifuged at 2000 g for 15 min at 4 °C. Samples were stored at -80 °C and analyzed within three months. Commercially available testkits were used for determination of PAI-1 antigen (Innotest PAI-1, Innogenetics).

Results: Variation in C18 FA did not significantly affect PAI-1 antigen levels

mean ± SD	*linoleic acid*	*stearic acid*	*elaidic acid*
all(n=56)	34.4 ± 27.2	32.4 ± 19.0	32.0 ± 24.5
males(n=26)	35.7 ± 19.1	35.5 ± 16.5	32.5 ± 18.4
females(n=30)	33.2 ± 32.9	29.8 ± 20.9	31.4 ± 29.1

PAI-1 antigen levels, however, increased significantly ($p<0.000$) during the test period (february-april) in the whole group.

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DOES REDUCTION OF PLASMA CHOLESTEROL NORMALIZE INHANCED PLATELET ACTIVITY IN PATIENTS WITH CORONARY HEART DISEASE AND HYPERCHOLESTEROLEMIA ? RESULTS OF 4 WEEK LOVASTATIN THERAPY ON BLOOD PLATELET ACTIVITY AND MEMBRANES. S.V.Shalaev, Z.M. Safiullina, I.A. Mezetskaya, T.D. Zuravleva, V.A. Zmurov.
Institute of Clinical and Preventive Cardiology, Tjumen, USSR.

ADP-induced platelet (ptl) aggregation, plasma thromboxane B2, phospholipid ptl membranes contens , free ptl cholesterol, lipid peroxides and superoxide dismutase (SOD) activity of ptl were studied in 25 patients (pts) with 3-vessel coronary heart disease (CHD) [plasma cholesterol (PC) > 250 mg/dL - gr.1], 32 pts with 3 - vessel CHD [PC < 200 mg/dL - gr.2], 24 pts with normal coronary arteries [PC < 200 mg/dL - gr.3]. Pts of gr.1 compared with those of gr.2 and 3 had significantly elevated ptl aggregation, conjugated dienes and thiobarbituric acid-reacting substances (TARS). Ptl membrane free cholesterol was significantly lower in pts of gr.1 compared with gr.2 and 3. Thromboxane B2 and SOD activity had a tendency to increasing in gr.1 . Pts of gr.1 received 20-40 mg lovastatin daily. To the 4-week PC decreased from 239+9 to 169+11 mg/dL ($p<0.01$), low density lipoprotein cholesterol reduced from 218 +12 to 115+6 mg/dL ($p<0,01$) and triglycerids - from 103+11 to 74+6 mg/dL ($p<0.05$). There was increase in $2 \cdot 10^{-6}$ M ADP-induced ptl aggregation from 44+3 to 61+5 % ($p<0.01$) and thromboxane B2 from 124+12 to 149+14 ng/ml ($p>0.1$). Changes of ptl activity were accompanied by activation of lipid peroxidation in ptl membranes : conjugated dienes increased from 116+9.2 to 152+11 nM/mg of lipids ($p<0.01$), TARS - from 5.2+0.42 to 14.6+ 1.52 nM/mg of lipids ($p<0.05$). Ptl membrane cholesterol decreased from 0.5+0.05 to 0.34+0.08 μM /ml ($p<0.05$). Slight reduction of lysophosphatidylcholine was revealed. Conclusion: Short term lovastatin therapy effectively reduces plasma cholesterol but it leads to the increase of ptl activity due to activation of lipid peroxidation in ptl membranes. It makes actual correction of changes of ptl function during lovastatin therapy.

Monday, 1 July, 1991

Tuesday, 2 July, 1991

Poster presentations

Clinical aspects of heparin

Poster Island: F

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Teflon Catheter Use for Subcutaneous Heparin Administration During Pregnancy: A Randomized Crossover Study. David R. Anderson, Jeffrey Ginsberg, Patrick Brill-Edwards, Christine Demers, Bev Grant, Jack Hirsh.
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Background. Subcutaneous heparin is the anticoagulant therapy of choice for women requiring deep venous thrombosis prophylaxis during pregnancy. Most patients complain about the discomfort caused by twice daily heparin injections. Recently an indwelling subcutaneous teflon catheter has become available that can be used as an entry port for subcutaneous injections and requires site change once weekly. In an ongoing study, we are comparing the use of this catheter with twice daily subcutaneous injections in women requiring heparin during pregnancy.

Methods. 9 patients requiring heparin therapy during pregnancy have been evaluated in a randomized, multiple-crossover study. During each 4 week cycle, patients alternated every 2 weeks between receiving heparin by twice daily injections into the catheter or by twice daily subcutaneous injections. After each cycle they completed a questionnaire to determine their preference of method of heparin administration. The side effects, doses and anticoagulant effects of heparin using the two delivery systems were also compared.

Results. 9 patients completed 20 4-week cycles of heparin therapy. 7 of the 9 patients selected the catheter as the preferred route of heparin administration ($p=.09$) in each of 18 cycles and 8 patients reported the catheter caused less pain and bruising than twice daily subcutaneous injections ($p=.02$). 3 of 9 patients developed local urticarial skin reactions at the sites of heparin injections. These reactions tended to be more severe when the catheter was used and 2 women discontinued using the catheter after the first cycle because of this reaction. There were no differences in the bleeding complications or in the heparin dose requirements between the two routes of heparin administration.

Conclusions. In our study, most pregnant women preferred heparin administration through the indwelling subcutaneous teflon catheter.