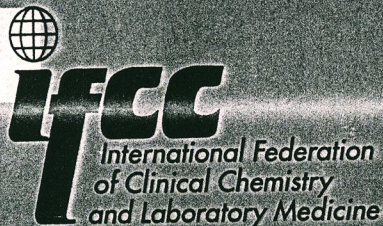


# CLINICAL CHEMISTRY AND LABORATORY MEDICINE



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**ABSTRACTS VOLUME**



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by N-ethylmaleimide (NEM) which, as a strong toxic and denaturing substance, is a bottleneck for further reagent improvement.

**Methods and results.** Here we describe the development of a liquid-stable assay without using NEM but a trinder component stable against coenzyme A. This allows liquid-stable enzyme preparations with a stability of 12 days at 37°C and a calibration/onboard stability of 2/4 weeks. Detection limit is 0.05 mmol/L and linearity is up to 3 mmol/L sodium oleate. CV for intra/inter-assay precision is less than 2 %. Interference is negligible for bilirubin, lipids and ascorbate. Hemoglobin does not interfere at levels up to 200 mg/dL. Good correlation data have been obtained for patient samples compared to a commercially available, lyophilized reagent ( $y=0.984x+0.05$  mmol/L,  $r=0.996$ ,  $n=114$ ).

**Conclusions.** We offer a versatile, liquid, 2-component reagent which can be used manually as well as on most clinical analyzers at a wavelength of 546 nm. The NEFA standard included is traceable to weighted Na-oleat.

# M187

## THE DIMINISHING OF OXIDATIVE STRESS BY DIET OPTIMIZATION MAY REDUCE THE OCCURRENCE OF METABOLIC SYNDROME IN OBESE PERSONS

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**Background.** Metabolic syndrome (MS), associated with high cardiovascular morbidity and mortality, has increasing impact. The aim of our study was to evaluate the influence of diet optimization on oxidative stress and MS occurrence in obese patients.

**Methods.** Oxidative stress markers (total amount of free radicals, malondialdehyde, allantoin,  $\alpha_1$ -antiproteinase, GSSG/GSH ratio), total antioxidant capacity and lipid standardised  $\alpha$ -tocopherol were determined in obese patients with restricted energy intake with lowering dietary carbohydrates (A;  $n=15$ ) and those with the same grade of obesity but not following dietary recommendations (B;  $n=17$ ) and in 48 healthy controls. In patients we evaluated presence of MS according to NCEP ATPIII. Free radical concentration was determined by direct method based on chlorophyllin acceptance of electrons, total antioxidant capacity using kit TAS (Randox, UK), malondialdehyde and  $\alpha$ -tocopherol by HPLC. Plasma levels of glucose, triglycerides, HDL-ch, LDL-ch, fibrinogen, uric acid, BMI and waistline were followed.

**Results.** Group A exhibited lower oxidative stress markers - free radicals (A:  $5.18\pm1.68$  mmol/L vs B:  $8.43\pm3.66$  mmol/L,  $p<0.01$ ), GSSG/GSH ratio (A:  $11.74\pm5.01\%$  vs B:  $15.38\pm5.93\%$ ,  $p<0.05$ ) and higher antioxidants: lipid standardised  $\alpha$ -tocopherol (A:  $3.70\pm0.51$   $\mu$ mol/L vs B:  $3.35\pm0.60$ ,  $p<0.05$ ) and ceruloplasmin.

**Conclusions.** Energy intake restriction by 2 000 kJ, mainly due to carbohydrate limitations, decreased oxidative stress and simultaneously increased lipid-standardised  $\alpha$ -tocopherol and ceruloplasmin in obese people. These changes correlated with diminished MS occurrence by about 50%, even when weight loss did not occur.

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# M188

## OXIDATIVE STATUS AND HOMOCYSTEINE METABOLISM IN OBESE SUBJECTS

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**Background.** Subjects with central deposition of adipose tissue show elevated cardiovascular morbidity and mortality. The pathogenic mechanisms leading to endothelial dysfunction could be due to Oxidative Stress, OS, (imbalance between Reactive Oxygen Species, ROS, and Total Antioxidant Capacity, TAC,) and hyperhomocysteinemia (HHcy), probably due to vitamin metabolism imbalance. Possible early vitamin B12 (B12) deficiency can now be highlighted by holotranscobalamin, HoloTC, (bioactive cobalamin fraction), assay.

**Methods.** To evaluate OS and homocysteine (Hcy) metabolism, an observational study was performed on 24 obese subjects (5M/19F, aged 34-65, median 44 years; BMI 27.3-45, median 33.5 kg/m<sup>2</sup>; without traditional cardiovascular risk factors). Serum TAC and ROS levels were measured by spectrophotometric methods (Diacron International, Grosseto, Italy), serum B12 and HoloTC, serum and erythrocyte folate, plasma Hcy concentrations by immunoenzymatic methods (AxSYM, Abbott Diagnostics, Abbott Park, IL, USA), lipid panel and inflammatory parameters by routine methods. Data were analysed using Pearson's correlation coefficient.

**Results.** 21% of cases showed mild HHcy (median 13.1 micromol/L, range 11.0-16.6) and 83% balanced vitamin status. Study population was characterised by OS due to increased mean ROS concentrations ( $421\pm81$  UCarr; reference interval 250-300) with normal mean TAC values ( $361\pm31$  micromolHClO/mL, reference value  $>350$ ). A significant ( $p=0.01$ ) positive correlation was found between ROS and both fibrinogen and C Reactive Protein.

**Conclusions.** Our results showed that obesity possibly increases the prevalence of HHcy, OS, and inflammation heightening the effects of classical risk factors.

# M189

## NOVEL ADIPOKINES RETINOL BINDING PROTEIN-4 AND LIPOCALIN-2 IN CHILDHOOD OBESITY: WHEN KIDS ARE NOT JUST "SMALL ADULTS"

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**Aim.** To investigate the impact of BMI on the circulating concentrations of retinol binding protein-4 (RBP4) and lipocalin-2 in obese children and adolescents, in comparison to