or percentage deviation from control.
Results LiHep mediated a proportional bias on the AST at >66 IU/ml heparin, resulting in a +11.5% bias at 200 IU/ml. LiHep mediated a proportional bias in amylase which became a fixed positive bias of 35 U/L amylase (or 26% of amylase activity) at 66IU/ml heparin. PPACK did not have a noticeable influence on either AST (max. bias -1.6 U/L, -0.9%) or amylase (max. bias -4U/L, -3%). LiHep at >66 IU/ml caused a proportional CK bias of -4.5% at 200 IU/ml heparin, but did not influence CK-MB. Combination of these values resulted in a slight increase in %CK-MB at 200 IU/ml heparin: +0.4 %CK-MB above the control 8.2 %CK-MB PPACK >100 µmol/L caused a 3.8% inhibition of CK activity but also inhibited CK-MB by 9%. The net effect on %CK-MB was a negative bias of -0.4 %CK-MB below the control of 8.2 %CK-MB.
Conclusions The lack of bias with AST and amylase results suggests that PPACK would be superior to LiHep for the preparation of plasma for Ektachem 700 analyses. Both anticoagulants had small comparable biases on either CK or %CK-MB.

57 A NEED FOR TRACE METAL ASSESSMENT IN PATIENTS ON TOTAL PARENTERAL NUTRITION

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Due to individual disease condition and subject variation, patients on standard trace metal regimens can have variable responses to total parenteral nutrition (TPN) therapy.
Objectives a. To demonstrate that essential trace elements need to be monitored in patients on TPN. b. To show that the nutrients and additives used in TPN fluids can be contaminated with metals such as aluminum. c. To illustrate that infusion of these metals can accumulate to toxic levels.
Methods Plasma and serum samples were used to monitor the essential trace metals, chromium, copper, iron, selenium and zinc, as well as aluminum in patients on TPN. Nutrients and additives used in the TPN fluids were also tested for metal contaminants. All the analyses were performed using either flame or flameless atomic absorption spectrophotometry.
Results In an adult population (n = 379) who required TPN, up to 95% had serum chromium above the upper reference range (3.8 nmol/L), about 82% had plasma copper within range (9-27 µmol/L), about 55% of the serum irons, about 58% of the serum selenium, and about 53% of the plasma zinc values were below the lower reference values (8 µmol/L, 1.26 µmol/L, 10.7 µmol/L, respectively). A major contaminant which caused an elevated serum chromium was associated with the amino acid nutrients. Calcium gluconate was determined to contain high aluminum which contributes towards an elevated plasma aluminum in these TPN patients.
Conclusions Patients on TPN should be monitored for adequate supplementation of the essential trace metals which would improve patient recovery and general nutrition. Parenteral fluids should be tested for possible metal contaminants such as aluminum and chromium.

58 EXTRACTION OF RESVERATROL FROM HUMAN BLOOD

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Trans-resveratrol, a flavonoid present in red wine has strong anti-oxidant properties, inhibits platelet coagulation and eicosanoid synthesis, and may prevent atherosclerosis.
Methods We have developed a HPLC method for resveratrol (R) employing a Nova-Pak C-18 column, a mobile phase of 74.7% 0.2M phosphoric acid and 25.3% acetonitrile at a flow rate (isocratic) of 1 mL/min, monitoring absorbance at 306 nm.
Results When R was added to fresh blood, >50% became tightly bound to cells or internalized. Because of its limited solubility in aqueous solvents, an organic protein precipitant was used. Of 4 reagents tested, acetone was the most effective. After 3 successive extractions, >90% was recovered from whole blood or cell fractions. The extract was passed through a C-18 silica cartridge. After drying, R was eluted with 50% acetonitrile. A volume of eluate equal to the initial volume of blood was collected, from which 20 µL was injected into the HPLC. Calibration curves were linear over the range 0-70 mg/L with a CV < 4%. Satisfactory correlation with a GC-MS procedure (Goldberg *et* al, Anal Chem 1994;66:3959-63) was obtained (r>0.900). No interfering compounds have yet been identified.
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59 OXIDATIVE STRESS IN THE PANCREAS OF EXPERIMENTALLY INDUCED DIABETIC RATS

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Reactive oxygen metabolites (ROM) are increasingly implicated in the pathogenesis of several metabolic disorders including diabetes mellitus. ROM exert their cytotoxic effects through peroxidation of membrane phospholipids resulting in formation of malondialdehyde (MDA). The increase in ROM could be due to decreased activity of antioxidant enzymes [catalase (CAT), glutathione peroxidase (GSH-Px) and superoxide dismutase (SOD)]. In the present study we, therefore, assessed the activity of CAT, GSH-Px, SOD and the MDA content in pancreas of control and diabetic rats. Diabetes was induced by a single intraperitoneal injection of streptozotocin (80 mg/kg body weight). Control and diabetic animals were sacrificed at 1, 2, 3, 4, 5, and 6 weeks after onset of diabetes. The MDA levels and antioxidant enzyme activity in the pancreas of diabetic rats were higher than controls at all intervals. Higher levels of MDA and increased activity of antioxidant enzymes suggest increased oxidative stress during the development and progression of diabetes mellitus.