350 A MICROPLATE METHOD FOR DETERMINATION OF GALACTOSE AND GALACTOSE- 1 -PHOSPHATE IN DRIED BLOOD SPOTS FOR NEONATAL SCREENING OF GALACTOSEMIA.

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Galactosemia is a hereditary disorder which results from the deficiency of galactose metabolism enzymes. Early diagnosis and institution of a galactose-free diet could prevent mental retardation, liver damage, and blindness caused by galactosemia. A quantitative microplate method was developed for determination of galactose (Gal) and galactose-1-phosphate (Gal-1-P) in dried blood spots. Free Gal and Gal hydrolyzed from Gal-1-P by alkaline phosphatase was measured by the fluorescence of NADH reduced from NAD in the presence of β-galactose dehydrogenase (from Pseudomonase fluorescens). Concentrations of blood Gal were calculated against standard dried blood spots. The within-run C.V. of Gal and of Gal-1-P were 3.7 to 14.4% and 3.2 to 7.2% , respectively. The between-run C.V. were 6.4 to 13.4% and 10.7 to 16.7% for Gal and Gal-1-P, respectively. The recovery of Gal and of Gal-1-P were 91.5% to 101.5% and 82.2% to 86.2%, respectively. The linearity of the analysis was good (r=0.997) and the detection limit was estimated at 110μM. This rapid and sensitive method could be used as a screening test for neonatal screening of galactosemia and for differential diagnosis of Gal Kinase and Uridyl transferase deficiency. It could also be applied to monitor the lactose-free dietary therapy for patients with galactosemia.

351 BLOOD LEAD, COPPER AND IRON LEVELS OF THE ELDERLY GROUP IN TAIPEI MEASURED BY ATOMIC ABSORPTION SPECTROMETRY.

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Blood samples from 100 apparently healthy elderly subjects(E)and 40 apparently healthy young subjects(Y) were analyzed by flameless electrothermal atomic absorption spectroscopy with Zeeman background correction.Blood lead, copper and iron levels of the "Y" group were 123± 38,980± 203 and 1320± 301ppb for males, 112± 32,1120± 195 and 1110± 303ppb for females. The difference of blood lead levels between elderly males and females was not significant(100± 42 vs 111± 35pp)and neither was the difference between the "Y"and"E" group.The mean values of blood copper and iron for elderly males were 1160± 275 and 1289± 401 ppb,for females,1280± 290 and 1089± 388ppb.Age and sex had effect on blood copper levels,while only sex affect blood iron levels.Within run precisions were 5.0,2.6 and 6.1%, between run,6.3,6.2 and 10.2% for lead,copper and iron respectively.The average recovery were 97.5± 2.4,101.8± 4.0 and 103.3± 1.7% for lead,copper and iron. The linearity were up to 150,150 and 120 ppb for lead,copper and iron individually.No significant interference was observed with lipid,bilirubin and hemoglobin for lead or copper measurement. Hemoglobin increased iron value but lipid and bilirubin had no effect on it.

352 MEASUREMENT OF URINARY PROTEIN WITH PYROGALLOL RED-MOLYBDATE METHOD BY COBAS FARA CENTRIFUGAL ANALYZER

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Coomassie Brilliant Blue used for measuring urinary protein is always adsorbed on the wall of cuvetts. To overcome this drawback, we applied Pyrogallol Red-Molybdate method on Cobas Fara Centrifugal Analyzer to measure urinary protein automatically. The linearity was up to 5 g/l and the measuring time was shorter than our current method (5 mins vs 20 mins). The within-run CVs were from 2.16% to 8.21%; and between-run CVs were from 2.2% to 7.42%. The recovery averaged 98.4%, The results by Pyrogallol Red-Molybdate method had a high correlation with those by manual Coomassie Brilliant Blue method (n=50, r=0.994, with slope 1.11 and intercept -6.26). According to our preliminary experience, this automated assay is feasible and valuable for clinical use in measuring urinary protein.

353 THE AGING BRAIN

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Aging is a progressive phenomenon that involved complicated biological malfunctions. Most physiological function are involved in aging and declined at approximately the same rate.It is well known that the process of aging involves biochemical changes at cellular level.In this report, focus are made on the membrane properties for young and old brain using animal models. Membrane consists of two major phospholipids, phosphatidylcholine (PC) and phosphatidylethanolamine (PE). Our observations are summarized as follows:

1.Polyunsaturated fatty acids (PUFA) are more abundant in PE, wheresa saturated fatty acids are more abundant in PC. The 18:3(27-28%), 18:1(17-22%) and 20:4(14-16%) fatty acids are the major components in PE. The 16:0 (32%) and 18:1(30%) fatty acids are the major components in PC.

2.Diet control caused no significant changes in the membrane compositions for the brain, but changed the lipid synthesized in the liver indicating that brain is a rather isolated organ.

3.The total lipids isolated from young and old rat's brains were reconstructed to form liposomes. The mobility and rigidity of the reconstructed membrane could reflect the physical properties of the original brain cells.

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