single 600 ug/100 gBW dose of dex, although V_{bl} was unchanged. Thus dex, like aldosterone, induces amiloride sensitive channels in the apical membrane of rat colon, and this occurs within 5 hours. Increased V_{bl} at 3 days but not at 5 hours may represent a delayed increase in Na, K, ATPase activity and/or in K selectivity in the basolateral membrane.

88 A NON-INVASIVE TECHNIQUE FOR THE DIRECT DETERMINATION OF HEPATIC EXTRACTION AND SYSTEMIC CLEARANCE OF INDOCYANINE GREEN IN BABOONS AND MAN

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The plasma clearance of indocyanine green (ICG) is often used to estimate liver blood flow, but the hepatic extraction of ICG may vary widely, making these estimates unreliable.

We have analysed the disposition of ICG in man and baboons by a two-compartment model that enables hepatic extraction ratio (ER) to be determined non-invasively without hepatic vein catheterisation. The line comparing the model derived ER and hepatic extraction measured directly with hepatic vein catheterisation by the Fick principle did not differ from the line of identity, showing that the two methods gave the same result.

When compared against clearance measured at steady-state (Cl_{ss}), the two-compartment model (Cl_2) gave a more accurate determination of systemic clearance than did the conventional one-compartment model (Cl_1), (Cl_2 vs Cl_{ss} p=ns; Cl_1 vs Cl_{ss} p<0.001).

ER, calculated by Fick's principle, was observed to fall with time after a bolus injection of ICG (ER at 4 min 0.58±0.013 vs ER at 6 min 0.55± 0.015, p<0.025; ER at 6 min vs ER at 8 min 0.48 ±0.014, p<0.005; mean±SEM). From a computer simulation of the model we were able to show that this is likely to be due to increasing reflux into plasma from the liver with time.

In conclusion, the results show that the plas disappearance curve determined for only ten mins after a bolus of ICG cannot be used to estimate clearance accurately and therefore liver blood flow. Moreover ER measured by Fick's principle following bolus administration is not constant. A two-compartment model adequately describes ICG disposition and enables hepatic ER and systemic clearance to be determined non-invasively.

89 THE DISTRIBUTION OF BLOOD PRESSURE

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Pickering, in the 1950's and 1960's suggested what is now the standard view of the distribution of blood pressure; that the distribution is unimodal log.normal, and hence that it is not useful to label individuals as 'hypertensive'. By implication any genetic control of hypertension should be polygenic. Recently work has been reported which suggests the importance of a single major gene locus on both a red cell sodium pump and blood pressure. It is thus of some interest to re-open the question as to the unimodality of blood pressure, bearing in mind that almost none of the original studies used formal statistical model fitting.

The present paper presents the results of fitting compound or mixture distributions to the data of two large studies, of men and women in Bergen (1950-1) and of men in Renfrew and Paisley (1972). Parameters of a simple normal or log.normal distribution, and of a mixture distribution (in which the means and proportions of the component distributions differed) were estimated by a maximum-likelihood procedure using the method of Newton-Raphson iteration. In general, differences in variances between the components of a mixture distribution produced no significant improvement in fit.

In both sets of data evidence was found for a sub-group with a higher mean pressure, this group being absent from young persons, appearing at about the age of 30, and rising in proportion until late middle-age, when they represented up to 20% of the population. The sub-group was found for both systolic and diastolic pressure distributions, the major difference being that the component distributions were log.normal for systolic pressures and normal for diastolic pressures.

Further evidence for a mixture distribution of blood pressure, in the form of anomalies of regression to the mean on re-testing, will also be presented.

90 COMPARISON OF DOC/SALT AND POST-DOC/SALT HYPERTENSION IN THE RAT

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Unilateral nephrectomy followed by administration of deoxycorticosterone (DOC), 12.5 mg thrice weekly and a solution of 1% NaCl plus 0.2% KCl produces severe hypertension in the rat. If the treatment is stopped after 4 weeks the hypertension persists; this is "post-DOC/salt hypertension". We made 30 rats hypertensive by four weeks of treatment with DOC and salt, then divided them into two equal and matched groups. In one group the DOC and salt were continued, in the other they were discontinued. Animals in the second group drank tap water. The two groups were then studied in parallel. The blood pressures were measured twice weekly and blood samples were also taken twice weekly for haematocrit estimation and blood film. When one member of a matched pair became