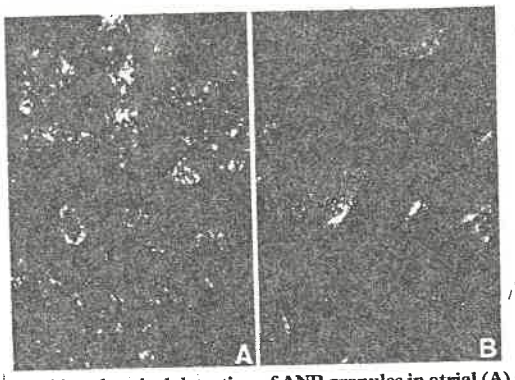
Clinical Test for Congenital Dislocation of Hip



Immunohistochemical detection of ANP granules in atrial (A) and ventricular (B) tissues from a patient with dilated cardiomyopathy.

of ANP may possibly be regulated by an overload to which ventricular myofibres are subjected.

Thus even ventricular myocytes may synthesise ANP in special circumstances such as in dilated cardiomyopathy. Because the ventricles are considerably larger than the atria, the total amount of ANP secreted by the ventricle may significantly contribute to high plasma ANP levels in some patients with CHF. The regulation of ANP expression in human ventricles and its relation to pathological changes in patients with CHF and/or dilated cardiomyopathy require further investigation.

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ADRENOCEPTORS IN THE DIAGNOSIS OF PHAEOCHROMOCYTOMA

SIR,—Diagnosis of phaeochromocytoma is usually done by the measurement of urinary levels of catecholamines. We have investigated adrenoceptors on membranes of circulating blood components (platelet α_2-adrenoceptors and leucocyte β-adrenoceptors) in six cases of phaeochromocytoma (four men and two women).

Diagnosis was suspected because of hypertension, and confirmed by high levels of urinary catecholamines and radiological data. In each case, the number of β-adrenoceptor sites (B_{max} assessments with ^{125}I-cyanopindolol) significantly decreased. B_{max} was 17·7 (SD 4·4) in the patients compared with 48·5 (1·5) fmol/mg protein in six age and sex matched controls ($p < 0.05$, Wilcoxon test). There was no change in affinity constant (Kd). In contrast, there was no significant difference between phaeochromocytoma patients and controls in B_{max} (206·6 [22·6] *vs* 186·0 [12·1] fmol/mg protein) and Kd values for platelet α_2-adrenoceptors (measured with ^{3}H-yohimbine). Catecholamine plasma levels, assayed by HPLC, were wide-ranging in the patients—10·7–172·8 pmol/l for noradrenaline and 0·7–3·9 pmol/l for adrenaline. Plasma dopamine β-hydroxylase activity was normal. Two cases were investigated after tumour removal: catecholamine plasma levels decreased and there was a significant increase in β-adrenoceptor number.

Our study agrees with some data,[1] but not all,[2] showing that α_2-adrenoceptors were not altered in platelets of patients with phaeochromocytoma. Human renal or rat cardiac and adipocyte β-adrenoceptors decrease in phaeochromocytoma.[1,3] Our work extends this finding to leucocytes. The decrease in leucocyte β-adrenoceptor number is an interesting index in the diagnosis and follow-up after treatment of phaeochromocytoma, because the leucocyte is a suitable and accessible marker. Pharmacologically we conclude that down-regulation occurs in vivo for β-adrenoceptors but not for α_2-adrenoceptors.

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CLINICAL TEST FOR CONGENITAL DISLOCATION OF HIP

SIR,—Mr Stone and colleagues (April 25, p 954) use a 256 Hz medical tuning-fork to induce vibrations in the patella, and they detect transmission of those vibrations on the symphysis pubis. But control of the input signal in terms of preload and induced frequency thus seems impossible, and the output was subjectively assessed by stethoscope. Can Stone et al demonstrate that the change in signal was due to asymmetry of tissue transmission rather than a difference in support, muscle-tissue tone, limb position, coupling of the input, or subjective bias of the examiner?

An objective test of congenital dislocation needs to be developed to prevent the unacceptable numbers of late presenting dislocation but some control, however small, is needed before this test can be accepted. We hope Stone et al continue their work as we believe that vibration arthrography[1] and transmission[2] has much to offer in the non-invasive diagnosis of locomotor disease.

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**This letter has been shown to Mr Richardson and colleagues, whose reply follows.—ED. L.

SIR,—Our study was set up to examine the feasibility of using our technique in any clinical situation, with the most basic of apparatus—namely, a stethoscope and a tuning fork. No attempt was made to control input preload, induced frequencies, or absolute values of output. However, despite these shortcomings our tests picked up 94% of unilateral dislocations tested.

Objective measurements with a variable frequency signal generator and a decibel meter are underway. Preliminary results suggest a loss of transmission of 10 dB in patients with congenital dislocation of the hip.

Using a chicken hip as a model we have found that dislocation, joint effusion, and soft tissue interposition all reduced sound transmission but this was not the case in hip flexion alone.

Our study was done blind and therefore unaffected by examiner bias. Control of muscle tone and limb position is not possible in young children; however, we suggest that this examination is carried out with as contented and comfortable a patient as possible.

We thank Professor Mollan and Dr Kernohan for raising the question of difference in support of the child. We had not considered this factor and hope to include this in further studies.

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