Letters to the Editor

Circadian variation of left ventricular diastolic function in healthy people

Sir,—In their study of healthy people, Voutilainen et al found a nocturnal decrease and a daytime increase in the rate of left ventricular relaxation, which they tentatively attributed to sympathoadrenal activity.1 Neurobiological features are suggested by reports that link dysregulation of brainstem and cardiovascular control and cardiovascular reactivity in challenging tasks with dopamine abnormalities lateralised to the right hemisphere. This hypothesis is supported by the importance of dopamine in the control of wakefulness manifested by a reduction of reaction time and gap frequency, optimal response organisation at intermediate dopamine tone in a medial-frontal- striatal activation system, and inhibition of the right hemisphere promoting left-hemisphere dominance associated with cardiac arrhythmia and vasoconstrictions.2 These findings prompt a multidisciplinary approach involving neuropharmacology and cardiovascular physiology3 in evaluating the pathophysiological importance of diurnal changes4 and the immediate course of speech-induced ischaemia.5 This method is supported by the correlation of the frequency and duration of speech hesitation pauses with a sidxfold increase in the prevalence and incidence of coronary heart disease and mood, respectively, which reflect properties of neuronal activity and firing, and by the correlation of anxiety with the sidxfold increase in fatal coronary heart disease, in particular, sudden cardiac death. It is also supported by the reduction in blood pressure associated with longer, less recurrent pauses6 that is predictive of a response to neuropharmacological intervention,7 and by the association of pause rate and variability in pause duration with the left and right hemisphere, respectively,8 hence the need to tailor interventions to asymmetrical brain functions.

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Effect of percutaneous fenestration of the atrial septum on protein-losing enteropathy after the Fontan operation

Sir,—We read with interest the paper by Mertens et al.1 They reported that in patients who had undergone Fontan operation, fenestration of the intracardiac septum should be considered before proceeding to Fontan take-down or heart transplantation.

We recently treated a boy with hypoplastic left heart syndrome who had a Norwood operation as a neonate and a hemi-Fontan operation at the age of 1 month. The Fontan (TCPC) operation was completed when he was one year old and he was discharged on 57th postoperative day. The patient was doing well at home for a month, before he returned to hospital with right heart failure. An intra-atrial venous route was created by using a 10 mm Gore-tex graft. Right heart failure progressed to protein-losing enteropathy which was resistant to medical treatment and finally we decided to construct a percutaneous fenestration of the interatrial septum made with a Gore-tex graft. A 6 French long sheath was introduced into the intra-atrial venous chamber from internal carotid vein, a Brockenbrough needle was introduced through the long sheath. A Blalock-Park blade catheter and 10 mm balloon catheter were introduced and a 10 mm diameter hole was made. Low cardiac output improved immediately. Transphaphal echocardiography immediately after the procedure showed a 7 mm diameter hole with significant right-to-left shunt in the Gore-tex baffle. The patient looked well and ascites and pleural effusion were reduced. However, the pleural effusion and ascites gradually returned within three weeks. Because he showed clinical signs of severe low cardiac output we decided on a Fontan take-down 41 days after the transcatheter fenestration. The patient died from multi-organ failure three days after the take-down operation. At operation we found that the fenestration in the Gore-tex graft had closed. The Gore-tex graft had thickened up to 2 mm and the hole was completely closed and covered by endocardium.

Mertens et al1 reported successful treatment of a patient whose native interatrial septum was fenestrated by means of a Brockenbrough needle. Our case suggested that early closure of the fenestrated hole in the Gore-tex baffle is likely.

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This letter was written to the authors, who reply as follows:}

Sir,—We read with interest the case described by Satomi et al in which they confirmed the effectiveness of a secondary fenestration as a treatment for protein-losing enteropathy (PLE) after Fontan operation. We share their experience of seeing a significant haemodynamic and clinical improvement in patients immediately after the fenestration was created. We have experience with cases we are aware of in other centres where this technique has been applied, Satomi et al observed a strong ten- dency for the protein-losing enteropathy to resolve. The three fenestrations we created in Fontan patients, all became considerably better.