

Letters to the Editor

Long-term improvement in left ventricular ejection fraction during continuous PGE₁-therapy in a patient with congestive cardiomyopathy

Sir,
Prostaglandin E₁ (PGE₁), a vasodilator and an inhibitor of platelet aggregation has been demonstrated to improve left ventricular ejection fraction (LVEF) experimentally.¹ Haemodynamic² and more recent radio-isotopic³ work has shown that in responsive patients PGE₁ increases LVEF by about 40%. We have now assessed the long-term effect of PGE₁ in an initially responsive patient.

A 43 year old male patient with a 17-month history of congestive cardiomyopathy exhibited a LVEF of 16% measured by radionuclide ventriculography (RNV). Using the same technique, the response to 10, 20, 40, 60 and 100 ng PGE₁ administered intravenously was examined. From the results a dose of 20 ng/kg/min was chosen for long-term treatment. PGE₁ (kindly provided by Sanol-Schwarz GmbH, Monheim, FRG) was administered using a portable pump (Pharmacia, Boston, Ma, USA) with a constant infusion rate of 2 ml/h. The reservoir was exchanged three times a week. Clinical assessment, radionuclide ventriculography and platelet function testing were performed monthly for 3 months after starting treatment.

Intravenous PGE₁ induced a significant and clinically relevant increase in LVEF (Table I) which was a maximal at PGE₁ 20 ng/kg/min. The improvement in LVEF persisted throughout the entire 3 month follow-up (Table II). No tachyphylaxis either in terms of the platelet or the haemodynamic effects was evident.

The findings obtained in this patient indicate that PGE₁ can induce a clinically important increase in LVEF. This effect may be mediated by afterload reduction, increase in myocardial contractility, and probably other unknown mechanisms. It may have therapeutic applications improving quality of life and in extending the time

Table I Effect of different doses of PGE₁ on cardiovascular variables

	Baseline	PGE ₁ dose in ng/kg/min				
		10	20	40	60	100
Blood pressure (mmHg)	120/80	120/75	120/70	120/75	115/75	120/75
Heart rate (beats/min)	78	81	80	83	80	84
LVEF (%)	16.3	22.4	29.1	28.5	30.3	29.9

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Table II Effect of PGE₁ (20 ng/kg/min) administered for 3 months on cardiovascular variables

	Baseline	After start of PGE ₁		
		1 month	2 months	3 months
Blood pressure (mmHg)	120/75	130/80	125/75	125/75
Heart rate (beats/min)	84	88	80	83
LVEF (%)	16.3	31.6	28.2	30.4

available for cardiac transplantation in patients with very severe congestive cardiomyopathy. Continuous administration of PGE₁ by means of a portable pump or, for the future, the application of a stable orally active analogue may represent a promising new approach.

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Plasma urea, an unreliable indicator of renal function in hepatic failure

Sir,
Renal impairment is a common accompaniment of severe liver disease. The clinico-pathological nature of this is complex and often multifactorial. In addition to the syndrome of hepatic nephropathy, factors such as infec-