

conditions the balance between thromboxane and prostacyclin may be tipped more strongly in the direction of aggregation. Interestingly, the incidence of pre-eclampsia in women exposed to aspirin during pregnancy is lower since aspirin in low doses irreversibly inhibits platelet cyclo-oxygenase, the source of thromboxane A₂. It is an exciting possibility that a relative deficiency of prostacyclin might be a factor in the pathogenesis of pre-eclampsia.

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Hypertension after taking hydrallazine

Hydrallazine is a potent hypotensive drug with well-recognised side effects.¹ We report a case in which the patient had a paradoxical rise of blood pressure after taking hydrallazine. This has not been reported.

Case report

An 18-year-old woman was admitted with a 15-month history of symptomless hypertension discovered at routine medical examination, for which she was taking propranolol 80 mg thrice daily and bendrofluzide 10 mg each morning. She was not taking oral contraceptives. There was no relevant past or family history. Clinical examination, including fundoscopy, was normal except for grade 1/4 left ventricular hypertrophy. Her blood pressure was 180/110 mm Hg supine. The results of analysis and microscopy of the urine were normal, creatinine clearance was 85 ml/min, and urinary vanillylmandic acid was within normal limits. Although intravenous pyelography was normal, isotope renography showed a reduced vascular peak on the right. Hydrallazine by mouth was added to her treatment. One hour after the first dose she developed headache, tachycardia (150/min), and her supine blood pressure rose to 180/140 mm Hg. A further intramuscular dose of 20 mg hydrallazine was given and within 15 minutes her headache had worsened, her vision became blurred, and the supine blood pressure rose to 240/160. Her pulse rate did not alter further and the fundi were unchanged. Her blood pressure was controlled by diazoxide 150 mg in a single intravenous dose. The diastolic pressure remained below 100 mm Hg for the next 12 hours, the pulse rate falling to 80/min.

The patient was subsequently given a further dose of hydrallazine 50 mg by mouth. Headache, nausea, and tachycardia (150/min) recurred and her supine blood pressure rose to 190/140 mm Hg within an hour. It fell spontaneously to normal over the next four hours. The dose of propranolol was subsequently increased to 120 mg thrice daily and her diastolic blood pressure remained below 90 mm Hg. She remained taking propranolol 120 mg thrice daily and bendrofluzide 10 mg each morning throughout further investigation. Her peripheral plasma renin activity at that time was within the normal range and showed a normal response to posture. A percutaneous femoral arteriogram showed that her right renal artery was stenosed just beyond its origin. The upper pole of the right kidney was supplied by tortuous collaterals originating from the base of the renal artery and the lower pole supplied by tortuous and enlarged lumbar vessels. The left renal artery was normal. Autotransplantation of the right kidney with reconstruction of the stenosed

right renal artery was performed. Her blood pressure over two years has remained normal without treatment. Histology of the renal artery showed fibromuscular hyperplasia.

Comment

The response to surgery shows that this patient's hypertension was due to the renal artery stenosis. The mechanism for the paradoxical hypertension remains unclear. Increase in flow across an obstruction increases the pressure gradient across that obstruction. An increase in renal blood flow due to hydrallazine-induced vasodilation will therefore drop the perfusion pressure distal to the obstruction and may cause hyperreninaemia. Plasma renin activity was not measured during the period of paroxysmal hypertension but normal renin activities were recorded when the diastolic blood pressure was persistently above 105 mm Hg. Renin activity also showed a normal increase on upright posture despite the coexistent beta-blockade. This suggests that the effect of the propranolol on plasma renin activity was small and low perfusion pressure distal to the stenosis was not causing hyperreninaemia. Reflex tachycardia is an accompaniment of vasodilator treatment. This reflex is interrupted by beta-blockade. The pronounced tachycardia noted in our patient suggests that this reflex still existed. But it fails to explain the rise in blood pressure unless increased catecholamine release also caused a rise in peripheral resistance in excess of an initial fall in resistance caused by hydrallazine.

The relation of the hypertensive response to this patient's renal artery stenosis remains conjectural. The response, however, is dangerous and should be remembered when hydrallazine and possibly other vasodilators are ineffective, particularly in association with renovascular hypertension.

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ONE HUNDRED YEARS AGO The following translation of a Chinese placard regarding the highly immoral practice of consuming cow's milk is quoted by *Nature* from the *Foochow Herald*. "Strictly refrain from eating cow's milk! Man should not rob the beasts of their food. Moreover, of all beasts the cow is the most useful and meritorious. Men who do not discriminate between mankind and beasts are worse than senseless. Those who sell milk darken their consciences for gain, and those who eat cow's milk foolishly think they are benefiting their bodies. Men who take medicine should first carefully investigate and find out its nature. Why do not those who eat cow's milk consider and inquire into its origin? For instance, men beget children, and while the children are small they depend upon the milk for their nourishment: so it is also with beasts. But when men buy milk to eat, do they not do injury to the life of the calf? And is there not bitter hatred and distress in the minds of both cow and calf? Beasts cannot speak: how, then, are they able to tell the man that, in eating the milk of beasts, his body becomes like that of birds and beasts? But if men wish to take strengthening medicine, there are numberless other articles in the world that are beneficial. What necessity, then, is there for taking cow's milk? Besides this, the death and life of men have their fixed number and limit, and this cow's milk cannot lengthen out and continue the life of man. Since, then, all know the truth, that it cannot do this, all ought to act with loving and benevolent spirit: especially all who receive this exhortation should keep from eating milk. The children of those who cause their families to refrain from eating milk will be preserved to grow up: they also will thus lengthen out their own lives, and will escape from evil in time of fatal epidemics. If such persons be able also to exhort others, who are ignorant of the first principles, to leave off the eating of milk, their descendants shall surely prosper. Published by the Hall of Good Exhortations. The xylographic blocks are deposited in the Ung Ling K'oh." (*British Medical Journal*, 1880.)