key points

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Intervention is increasing both in the management of acute coronary syndromes and chronic stable angina and so too is the need for repeated intervention, where the complexity and procedural risk may be increased as well as the psychological and traumatic burden to patients of increasing age and morbidity.

Enhanced external counter pulsation (EECP) is an alternative means of managing coronary disease. This therapy provides augmentation of diastolic flow, through sequential inflation and after-load reduction by simultaneous deflation, from a series of three cuffs applied to calves, lower thigh, upper thigh and buttocks.

Currently, EECP is used predominantly in patients with severe angina, who are at high risk and are not suitable for revascularisation. It provides a therapeutic and supportive approach to managing such patients regardless of age and comorbidity including those with stable heart failure.

Treatment is carried out daily on an outpatient basis for a total of 35 hours over three to seven weeks. RCTs have reported improved symptoms and exercise time to onset of ischaemia. Improved quality of life scores have been reported two years after treatment.

EECP provides not only a safe, well tolerated and therapeutic treatment for these patients, but also facilitates a supportive approach through 35 hours of therapy. It improves fitness through passive lower body exercise and often an improvement in wellbeing which may relate to an effect of therapy delivered to the entire circulation. Other benefits include the potential to reduce erectile dysfunction, which is so prevalent and disabling in patients with vascular disease.

There are relatively few absolute contraindications. These include, haemodynamically significant aortic valve regurgitation, abdominal aortic aneurysm requiring intervention, recent history of venous thromboembolism, severe pulmonary hypertension, poorly controlled systolic hypertension and major bleeding diathesis.

Provision of EECP should be considered as part of a dedicated service for patients with refractory angina. This service should ideally offer a careful diagnostic assessment and a multidisciplinary approach, including psychological support and rehabilitation and in those with a continuing burden of symptoms the freedom to choose between a psychological approach with CBT, a therapeutic approach with EECP and palliative treatments that can be offered by pain specialists.

Growing experimental evidence suggests that EECP may exert its clinical benefits via the effects of shear stress on endothelial function. Combined with optimal medical therapy EECP has been shown to reduce mortality and MI rates and provide a protective effect over five years.