SUMMARY

Introduction: Resistant arterial hypertension, defined as that which persists despite administration of three or more antihypertensive drugs (including a diuretic) in adequate doses, is an important cardiovascular and mortality risk factor.

Objectives: To assess the renal sympathetic denervation technique using Symplicity® catheter-based endovascular radiofrequency renal-nerve ablation, in terms of its safety, efficacy and/or effectiveness for treatment of resistant arterial hypertension. Assessment focused mainly on the changes brought about in short- and long-term systolic and diastolic blood pressure, and their effects on cardiovascular morbidity and mortality.

Methods: A search of the scientific literature was made until July 2012, covering the following databases: Medline; Embase; Health Technology Assessment (HTA); Database of Abstracts of Reviews of Effectiveness (DARE); NHS Economic Evaluation Database (NHSEED); Cochrane Library Plus; ISI Web of Science; Índice Médico Español (IME); Clinical Trials Registry; and Cochrane Central Database. From among the papers yielded by the bibliographic search, only those that met the selection criteria were selected; data were then extracted and the evidence summarised.

Results and discussion: The bibliographic search yielded 289 papers. Of these ten met the inclusion criteria, with the scientific evidence being drawn from three studies in the Symplicity Clinical Trial Program and another seven studies, some of which were an extension of the former. The studies had different experimental designs -with five being case series- and displayed important methodological limitations.

Conclusions: The renal denervation technique reduces blood pressure, which is maintained up to 2 years after performance of the procedure, though ambulatory monitoring at 6 months shows a blood pressure pattern that is similar albeit less pronounced. Other beneficial effects observed included an improvement in glucose metabolism, diastolic function and severity of obstructive sleep apnoea. The technique showed itself to be safe, with a low incidence of immediate and short- and long-term complications. Current evidence is nevertheless based on a small number of studies, with limitations that include: small sample size; overlapping of patients; presence of conflicts of interest; short follow-up; possible biases in the evaluation of variables; and a high degree of heterogeneity in the response to renal sympathetic nerve ablation.

Recommendations: In view of the uncertainty surrounding the efficacy, efficiency, effectiveness, safety and therapeutic utility of radiofrequency sympathetic renal-nerve ablation in the treatment of resistant arterial hypertension, its incorporation into the health service portfolio is not recommended at the present time. Accordingly, there is a need: firstly, for randomised clinical trials, aimed both at assessing the technique in the long term and its impact on the reduction of cardiovascular morbidity and mortality, and comparing the different existing renal denervation methods; and secondly, for cost-effectiveness studies.