

## DEVICE THERAPY

**CRT effective in elderly patients with heart failure**

Cardiac resynchronization therapy (CRT) is effective in patients with heart failure regardless of age, according to a new report from investigators in the Netherlands.

“Elderly patients are under represented in major CRT trials and data regarding device-related adverse events, efficacy, and long-term outcome of CRT in this patient group are scarce, implantation of CRT [devices] in elderly patients, therefore, remains controversial,” explains Nina Ajmone Marsan who led the study.

Using registry data from Leiden University Medical Center, Netherlands, the researchers retrospectively analysed long-term outcomes and adverse events in 798 patients

who received CRT between June 2000 and July 2010, with a primary end point of all-cause death. All patients initially had a left ventricular ejection fraction  $\leq 35\%$ , QRS duration  $\geq 120$  ms, and NYHA class II–IV symptoms of heart failure. The investigators stratified patients in the registry according to age, with those CRT recipients aged  $\geq 75$  years classed as ‘elderly’ ( $n = 208$ ) and those aged  $< 75$  years ‘nonelderly’ ( $n = 590$ ). The incidence of device-related adverse events showed a slight trend towards pneumothorax and pocket haematoma in the elderly patient group, which was explained by greater use of anticoagulant therapy compared with nonelderly patients.

At 6 months follow-up, both patient groups showed a similar and significant improvement in NYHA class, left ventricular function, and 6-min walking distance. However, after 4 years, cumulative all-cause mortality was highest among elderly patients (40% versus 32%;  $P = 0.013$ ), but this difference was due to noncardiac events (29% in elderly versus

19% in nonelderly patients;  $P < 0.001$ ). Multivariate analysis indicated that diabetes mellitus (HR 2.322, 95% CI 0.979–4.178,  $P = 0.019$ ), impaired kidney function (HR 0.975, 95% CI 0.959–0.995,  $P = 0.006$ ), and 6-min walking distance (HR 0.996, 95% CI 0.993–0.998,  $P = 0.001$ ) were all associated with all-cause mortality in elderly patients who received CRT.

“This study observed similar benefit from CRT both in elderly and nonelderly patients,” concludes Ajmone Marsan. “Our findings suggest that age should not preclude a CRT implantation after considering certain factors, such as renal function and diabetes, but further prospective studies are needed to confirm these results.”

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**Original article** Höke, U. *et al.* Left ventricular reverse remodeling, device-related adverse events, and long-term outcome after cardiac resynchronization therapy in the elderly. *Circ. Cardiovasc. Qual. Outcomes* doi:10.1161/circoutcomes.113.000821



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