

Impact of endovascular repair on the outcomes of octogenarians with ruptured abdominal aortic aneurysms: a nationwide Japanese study

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Objective: This study aimed to clarify the impact of endovascular aneurysm repair (EVAR) on clinical outcomes in Japanese patients of advanced age with ruptured abdominal aortic aneurysm (rAAA).

Methods: This was a national registry based retrospective comparative study, using data from the Japanese Registry Of All cardiac and vascular Diseases-Diagnostic Procedure Combination (JROAD-DPC), a nationwide claim based database from more than 600 hospitals. Patients admitted with rAAA between April 1, 2012, and March 31, 2015 were included in the study. Patient characteristics, management, and outcomes were compared between the elderly (aged ≥ 80 y) and the less old. The primary endpoint was in hospital mortality; the secondary endpoint was the functional status at discharge.

Results: Of 3 969 eligible patients, 49.9% were categorised as elderly. Elderly patients had a higher prevalence of female gender (41.8% vs. 17.0%, $p < 0.001$) and disturbance of consciousness on admission (28.6% vs. 20.7%, $p < 0.001$). They were less likely to undergo open surgical re-

pair (31.6% vs. 56.7%, $p < 0.001$), although EVAR was performed similarly in both groups (13.7% vs. 14.8%, $p < 0.33$). The unadjusted mortality rate (61.8% vs. 37.6%, $p < 0.001$) and mean Barthel index at discharge (73.0 vs. 91.8, $p < 0.001$) were statistically significantly worse in the elderly. Multilevel mixed effect logistic regression analyses showed that old age was detected as an independent predictor of in hospital death (odds ratio 2.75; 95% confidence interval, 2.39–3.17; $p < 0.001$). However, for patients who received EVAR, old age was not statistically significant (odds ratio 1.13; 95% confidence interval, 0.77–1.66; $p < 0.53$).

Conclusion: Elderly patients with rAAA were less likely to be offered open surgical repair, and the mortality among those who received surgery was high. However, for the small subgroup of elderly patients currently selected for EVAR there was a favourable outcome. The further implementation of EVAR for rAAA in Japan, especially for elderly patients with suitable anatomy, may be justified.

Multivariable analyses by treatment

Groups	In-hospital mortality											
	Overall			Open surgery			Endovascular repair			Medical treatment		
	OR	95% CI	P	OR	95% CI	P	OR	95% CI	P	OR	95% CI	P
Young												
Elderly	2.43	1 (Reference) 2.06–2.87	<0.001	1.88	1 (Reference) 1.45–2.44	<0.001	1.13	1 (Reference) 0.77–1.66	0.53	2.53	1 (Reference) 1.71–3.72	<0.001

Adjusted for gender, heart failure, COPD, diabetes mellitus, cerebrovascular disease, renal failure, disturbance of consciousness, vasopressor administration, hospital bed size, and number of cardiovascular surgeons.