Morphological suitability for endovascular repair, non-intervention rates, and operative mortality in women and men assessed for intact abdominal aortic aneurysm repair: systematic reviews with meta-analysis

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BACKGROUND
Prognosis for women with abdominal aortic aneurysm might be worse than the prognosis for men. We aimed to systematically quantify the differences in outcomes between men and women being assessed for repair of intact abdominal aortic aneurysm using data from study periods after the year 2000.

METHODS
In these systematic reviews and meta-analysis, we identified studies (randomised, cohort, or cross-sectional) by searching MEDLINE, Embase, CENTRAL, and grey literature published between Jan 1, 2005, and Sept 2, 2016, for two systematic reviews and Jan 1, 2009, and Sept 2, 2016, for one systematic review. Studies were included if they were of both men and women, with data presented for each sex separately, with abdominal aortic aneurysms being assessed for aneurysm repair by either endovascular repair (EVAR) or open repair. We conducted three reviews based on whether studies reported the proportion morphologically suitable (within manufacturers' instructions for use) for EVAR (EVAR suitability review), non-intervention rates (non-intervention review), and 30-day mortality (operative mortality review) after intact aneurysm repair. Studies had to include at least 20 women (for the EVAR suitability review), 20 women (for the non-intervention review), and 50 women (for the operative mortality review). Studies were excluded if they were review articles, editorials, letters, or case reports. For the operative review, studies were also excluded if they only provided hazard ratios or only reported in-hospital mortality. We assessed the quality of the studies using the Newcastle-Ottawa scoring system, and contacted authors for the provision of additional data if needed. We combined results across studies by random-effects meta-analysis. This study is registered with PROSPERO, number CRD42016043227.

FINDINGS
Five studies assessed the morphological eligibility for EVAR (1507 men, 400 women). The overall pooled proportion of women eligible (34%) for EVAR was lower than it was in men (54%; odds ratio [OR] 0·44, 95% CI 0·32-0·62). Four single-centre studies reported non-intervention rates (1365 men, 247 women). The overall pooled non-intervention rates were higher in women (34%) than men (19%; OR 2·27, 95% CI 1·21-4·23). The review of 30-day mortality included nine studies (52 018 men, 11 076 women). The overall pooled estimate for EVAR was higher in women (2·3%) than in men (1·4%; OR 1·67, 95% CI 1·38-2·04). The overall estimate for open repair also was higher in women (5·4%) than in men (2·8%; OR 1·76, 95% CI 1·35-2·30).

**INTERPRETATION**

Compared with men, a smaller proportion of women are eligible for EVAR, a higher proportion of women are not offered intervention, and operative mortality is much higher in women for both EVAR and open repair. The management of abdominal aortic aneurysm in women needs improvement.

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