Outcome of elderly patients undergoing intracranial meningioma resection - a systematic review and meta-analysis.

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Abstract
Background. Intracranial meningioma is a common condition in the elderly population. Surgical resection in this group of patients may be rendered more hazardous due to the patients' ageing physiology and to multiple comorbidities. This systematic review and meta-analysis aimed to summarise outcome data of elderly patients undergoing intracranial meningioma resection. Methods. Using Ovid Medline, longitudinal studies published from 2002 to October 2012 with patients aged ≥ 65 years that described outcomes after intracranial meningioma resection were reviewed. Outcome data included mortality, recurrence, complication rate and length of hospital stay (LoS). Grading score systems and covariates for predicting outcome were collected. Pooled estimates of mortality data were calculated in StatsDirect using a random effects method. $I^2$ statistic was used to assess heterogeneity. Results. Thirteen eligible studies with a total of 7010 patients (mean age, 73.6 years) were included, in which 82% patients came from one study. The pooled estimates of 90-day and 1-year mortality from available data were 6.6% (95% confidence interval [CI], 4.6-9.1%; n = 735; $I^2 = 32.1$) and 9.6% (95% CI, 7.0-12.6%; n = 564; $I^2 = 24.3$), respectively. The overall complication rates ranged from 2.7% to 29.8%, and the overall incidence of complications was 20% per patient (range, 3-61%). Other outcome data were heterogeneous mainly due to incomparable study designs. Conclusions. Current evidence indicates satisfactory surgical outcomes in the elderly with intracranial meningiomas, though the risks of complications necessitate careful consideration when deciding to operate. Risk factor analysis emphasised the importance of considering pre-operative status and comorbidities during patient selection. Future research should address the causes and prevention of complications, and compare outcomes between younger and older patients using detailed stratifications of tumour characteristics.

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