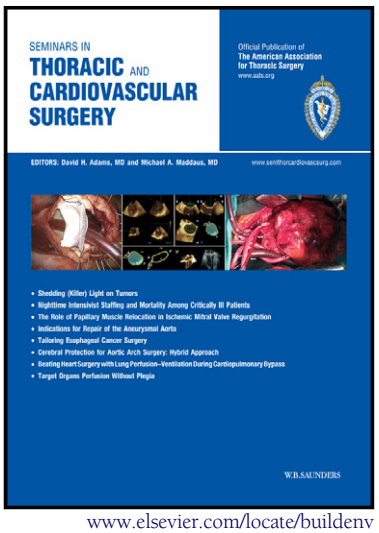

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The Use of Robotic-Assisted Thoracic Surgery for Lung Resection: A Comprehensive Systematic Review

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TITLE PAGE

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ABSTRACT

Objective: The primary objective of this study is to systematically review all pertinent literature related to robotic assisted lung resection (RATS).

Methods: RATS case series, and studies comparing RATS to Video-Assisted Thoracoscopic Surgery (VATS) or thoracotomy were included in the search. In accordance with PRISMA guidelines, two independent reviewers performed the search and review of resulting titles and abstracts. Following full-text screening, a total of 20 articles met the inclusion criteria and are presented in the review. Amenable results were pooled and presented as a single outcome, and meta-analyses were performed for outcomes having more than 3 comparative analyses.

Results: Data are presented in four categories: Technical Outcomes, Perioperative Outcomes, Oncological Outcomes, and Cost Comparison. RATS was associated with longer operative time, but did not result in a greater rate of conversion to thoracotomy than VATS. RATS was superior to thoracotomy and equivalent to VATS for the incidence of prolonged air leak and hospital length of stay. Oncological outcomes such as nodal upstaging and survival were no different between VATS and RATS. RATS was more costly than VATS, with the majority of costs attributed to capital and disposable expenses of the robotic platform.