| **Study, First Author, Year** | **Was randomization adequate?** | **Was allocation concealment adequate?** | **Were groups similar at baseline?** | **Was intervention fidelity adequate?** | **Was**  **adherence to the intervention adequate?** | **What was the**  **overall attrition\*?** | **What**  **was the differential attrition\*?** | **Did the study have differential or overall high attrition raising concern for bias?** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ACST, Halliday, 200418  Halliday, 201019  den Hartog, 201320  Halliday, 199421  Halliday, 199522 | Yes | Yes | Yes | Yes | Yes | 5.8% immediate; 6.7% deferred; 1.9% (followup to death or at least year 3  was 98% complete, 3062/3120) | 0.9% | No |
| ACAS, ACAS Study  Group, 199523  Baker, 200024  Young, 199625 | Yes | Yes | Yes | Yes | Yes | 1.2% (median followup, 2.7 y; 87% of patients completed 1 y of followup; 68% completed 2 y; 44% completed 3 y; 26% completed 4 y; and 9% completed 5 y) | 0.1% | No |
| VACS, Towne, 199026  Hobson, 199327  Hobson 198628 | Yes | Yes | Yes | Yes | Yes | Surgery: 9.5%  MM: 6.4%  (Mean, 48 months of followup) | 3.1% | No |

\* Attrition includes participants with no outcome data.

| **Study, First Author, Year** | **Did the study have**  **crossovers or**  **contamination raising**  **concern for bias?** | **Were outcome measurements equal, valid and reliable?** | **Were outcome assessors masked?** | **Was the**  **duration of followup adequate to assess the outcome?** | **Was an appropriate method used**  **to handle**  **missing data?** | **Did the**  **study use acceptable statistical methods?** | **Quality Rating** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| ACST, Halliday, 200418 Halliday, 201019  den Hartog, 201320  Halliday, 199421  Halliday, 199522 | Yes (10% of immediate CEA group had not undergone CEA by 1 year; 7.5% had not by year 10; 26% [407/1560] of the MM/deferral group underwent CEA within 10 years; about two thirds of these were asymptomatic CEAs) | Yes | No for the initial outcome assessor (e.g., the surgeon doing the CEA  was typically the person filling out event reports); yes for the Endpoints Committee who sought medical records when strokes were reported. | Yes | CND | Yes | Fair |
| ACAS, ACAS Study Group, 199523  Baker, 200024  Young, 199625 | No | Yes | No for the initial neurologist and surgeon (but patients also  completed standardized TIA/stroke questionnaires at followups and were instructed to contact the coordinator for any problems); yes for the Endpoints Committee. | Yes | Yes | Yes | Good (for the 2.7-y data that were based on actual events; higher risk of bias for the 5-y estimates because just 9% had followup) |
| VACS, Towne, 199026 Hobson, 199327  Hobson 198628 | No (only 3.8% [8/211] of CEA group  did not undergo surgery; no reporting  of subjects in the medical group  getting CEA) | Yes | No for the initial neurologist and vascular surgeon at each center;  yes for the Endpoints Committee. | Yes | Yes | Yes | Good |

Good: Meets all criteria: comparable groups are assembled initially and maintained throughout the study (followup ≥80%); reliable and valid measurement instruments are used and applied equally to the groups; interventions are spelled out clearly; all important outcomes are considered; and appropriate attention to confounders in analysis. In addition, for RCTs, intention to treat analysis is used.

Fair: Any or all of the following problems occur, without the fatal flaws noted in the "poor" category: generally comparable groups are assembled initially but some question remains whether some (although not major) differences occurred with followup; measurement instruments are acceptable (although not the best) and generally applied equally; some but not all important outcomes are considered; and some but not all potential confounders are accounted for. Intention to treat analysis is done for RCTs.

Poor: Any of the following fatal flaws exists: groups assembled initially are not close to being comparable or maintained throughout the study; unreliable or invalid measurement instruments are used or not applied at all equally among groups (including not masking outcome assessment); and key confounders are given little or no attention. For RCTs, intention to treat analysis is lacking.

**Abbreviations:** CEA = carotid endarterectomy; CND = could not determine; KQ = key question; MM = medical management; TIA = transient ischemic attack; RCT = randomized, controlled trial.