Risk of cerebrovascular events after neck and supraclavicular radiotherapy: a systematic review
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CRD summary
This review concluded that neck radiotherapy increased the risk of cardiovascular events but that any benefits of the therapy should be taken into consideration. It was not possible to quantify the risk after supraclavicular radiotherapy. Given several limitations, including the potential for bias, uncertainty surrounding heterogeneity, and generally poor reporting in the review, the authors' conclusions may not be reliable.

Authors' objectives
To assess the risk of cerebrovascular events in patients receiving neck and supraclavicular radiotherapy.

Searching
MEDLINE was searched for articles published between 1990 and 2008. Search terms were reported. In addition, references and related material were manually searched.

Study selection
Studies reporting the number of cerebrovascular events in patients receiving radiotherapy to the neck region were eligible for inclusion.

Included studies were of patients with lymphoma, neck or breast cancer, receiving radiotherapy ranging between 30 and 66 gray. Some studies included controls.

The authors did not state how many reviewers performed the study selection.

Assessment of study quality
The authors did not state that they assessed validity.

Data extraction
Odds ratios (ORs) and their 95% confidence intervals (CIs) were calculated from the number of patients suffering cardiovascular events. Risk ratios and hazard ratios were also extracted. The authors did not state how many reviewers performed the data extraction.

Methods of synthesis
Odds ratios were combined by area of radiotherapy (i.e neck or supraclavicular).

Results of the review
Five studies (n=6,908; 2,567 receiving neck radiotherapy, 222 receiving supraclavicular radiotherapy, 4,119 non-irradiated patients) were included in the review. The median follow-up was reported as 7.3 years and ranged from two months to a median of 8.4 years.

Significantly more cardiovascular events were reported in patients receiving neck radiotherapy (66 events) compared to non-irradiated patients (12 events) (OR 9.0, 95% CI: 4.9, 16.7, p<0.0001, five studies).

Forest plots were not presented in the review. There was insufficient evidence on supraclavicular radiotherapy to allow data synthesis.

Authors' conclusions
The risk of cardiovascular events are significantly increased in patients receiving neck radiotherapy, but such be
balanced against the benefits of the therapy in specific clinical situations. If there is uncertainty surrounding the benefits, then treatment should be restricted where possible. It was not possible to quantify the risk of cardiovascular events after supraclavicular radiotherapy.

CRD commentary
The review question was clear, but inclusion criteria were broad. The literature search was limited to one database. As only published articles appear to have been searched, potentially relevant studies have been missed. Study validity was not assessed and the process for each stage of the review was not made clear, which means that it is unclear how reliable the results are; reviewer error and bias cannot be ruled out. Statistical heterogeneity was not assessed, so it is unclear whether it was appropriate to combine the studies. Also, as limited details on patient characteristics were reported, it is unclear whether patients were comparable at baseline. Given the above limitations, and taking into consideration the limited data presented in the review and the fact that the majority of studies were not controlled, the authors’ conclusions may not be reliable.

Implications of the review for practice and research
Practice: The authors did not state any implications for practice.

Research: The authors stated that a prospective cohort study would be optimal to study toxicity.

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This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.