Correspondence

Feasibility of using CTCA in patients with acute low-to-intermediate likelihood chest pain in a DGH

Dear Sirs,

I would like to make three points about this paper:[1]

1. The summary states "results suggest that it is feasible to use computed tomography coronary angiography (CTCA)…in place of exercise tolerance testing (ETT) at no extra cost". The body of the article shows "CTCA had a higher cost compared with ETT. The overall cost per patient was £375 with CTCA *vs.* £309 with ETT, but this was not statistically significant (p=0.28)". The lack of significance is attributable to the small size of the data-set, and it does not allow a contrary conclusion to be drawn. The statement in the summary is not an acceptable conclusion to draw from the results in the body of the paper.

Furthermore, the cost analysis was based on guesswork about the cost of CTCA. The analysis for CTCA is much more complicated than for CT pulmonary angiogram (CTPA). As a result the cost would be expected to be higher. To guess that it would be the same makes the entire cost analysis suspect.

2. The discussion states "CTCA is a safe and non-invasive diagnostic tool". There is no statement about complications (or lack of) in the results. Clearly there is a small but real risk of contrast nephropathy and contrast allergy. This risk is absent in the ETT arm.

Furthermore, the effectiveness of diagnostic tools ideally needs assessment against outcome. This is entirely missing in the study. Instead, some of the patients received invasive coronary angiography (ICA). Catheter angiography is not a good gold standard – patients have significant cardiac events with normal coronary artery angiography[2] and subgroups of patients with abnormal coronary artery angiography have excellent outcomes without intervention.[3]

3. The discussion states: "Prospective gating, which is available on all modern 64-slice CT scanners, reduces the radiation dose to 2–3 mSv. This is a fraction of the radiation dose of single-photon emission computed tomography (SPECT) perfusion." This is not correct. Just as CTCA has progressed to prospective gating, there have been technical changes in SPECT perfusion scanning. SPECT scanners currently being sold and commonly in use have radiation dose as little as 1 mSv per scan.[4]

My personal opinion is that any multi-centre trial needs to be based on outcome data, rather than an imperfect gold standard.

Conflict of interest

None declared.

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The authors' reply

We are grateful to Dr Williamson for his comments. In response:

1. We acknowledge that our study was a feasibility study in a single centre with retrospective comparison of ETT vs. CTCA. The cost analysis demonstrates that the overall cost of using CTCA as an initial test is similar to ETT, because ETT leads to more second-line testing, which offsets the difference in cost of the actual test. Furthermore, if all the patients with equivocal ETT were investigated further, the overall cost of the ETT strategy would have been higher. Our pricing of CTCA was a local estimate based on the cost of CT scanner time, contrast, radiographer and the radiologist/cardiologist time.

With a good quality study and modern semi-automated coronary analysis tools, reporting time is short, particularly in patients with normal coronary arteries. The National Institute of Health and Clinical Excellence (NICE) estimated the cost of CTCA in a recent cost analysis to be £175, which is close to our estimate.[1]

2. We did not collect long-term outcome data. However, there are several on-going large multi-centre clinical trials comparing CTCA vs. SPECT, including outcomes, which will report over the coming few years.[2]

3. The new developments in SPECT perfusion which Dr Williamson describes are clearly very important, particularly as another publication by Einstein et al. describes patients undergoing multiple SPECT studies over a 20 year period, accumulating a total of 121 msv of radiation in the process.[3]

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