Reviewer’s report

Title: Nitrous Oxide Does Not Increase the Risk of Cancer Recurrence after Colorectal Surgery: A Randomized, Blinded Study

Version: 2 Date: 15 December 2008

Reviewer: Philip Peyton

Reviewer's report:

General comments:

This study is a randomised follow-up study looking at the effect of N2O on colonic cancer recurrence, using data from a previous trial focussing on the effect of N2O on wound infection rates in colonic surgery.

It is a post-hoc analysis, and the proportion of patients in the original study with colon cancer, and thus eligible for inclusion in the current study, is surprisingly small (about half), reducing the power of the analysis. A more modest effect on this important endpoint would still be of considerable interest. However, the authors make this limitation clear in their discussion, and the methodology appears quite thorough.

Recommendations: Accept after minor essential revisions

P7. Last para. Only half of the patients of the original study were included in this analysis because they “had initial colorectal cancer surgery and were available for this analysis”. I would have expected a higher proportion of cancer patients in this population. Were many patients excluded from the current analysis for other reasons? Figure 1 states that some of those excluded had surgery for “recidivism”. What does this mean? Figure 1 needs a caption, explaining this term and referencing of “Fleischmann”.

P9. Para 2. This is somewhat confusing to the amateur statistician. Did the model include variables different at a P < 0.25, or 0.4, or both in some way?

P10 para 2. How do death rates of 38% and 37% equate to a 33% reduction in mortality rate?

P10 last para. Kaplan-Meier survivor function estimates are summarized in Figure 2, not Figure 1.

Level of interest

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- An article of importance in its field

The reviewer has no competing interests
Level of interest: An article of importance in its field

Declaration of competing interests:
The reviewer has no competing interests