Reviewer’s report

Title: Effects of Ambient Air Pollution on Functional Status in Patients with Chronic Congestive Heart Failure: A Repeated-Measures Study.

Version: 1 Date: 29 May 2007

Reviewer: Robert D. Brook

Reviewer’s report:

General: This is a well-written paper and an important first study comparing serial changes in BNP parameters with estimated exposures to air pollutants and PM. The study has some limitations (small sample size, exposure estimation limitations, exclusion of ‘diastolic dysfunction’ CHF) that are adequately outlined and addressed in the discussion. Although findings are negative, the importance of the null result to the field and the analyses presented demonstrated required sample sizes given the study findings are important given the growing body of increasing evidence linking acute PM exposure to CHF.

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)
None

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)
None

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Discretionary Revisions (which the author can choose to ignore)
Several publications exist showing the acute tobacco smoke exposure can worsen diastolic parameters by echo (Chest 2007; 131: 1142, J Am Soc Echo 2002; 15: 1232). It may be that a more sensitive parameters of diastolic function could uncover a biomarker of a PM-induced precipitant to CHF that BNP (being insensitive and biologically variable) could not. It may be worthwhile noting that acute smoking (although not completely similar to PM exposure, but that shares many same mechanisms) can mediate diastolic function changes and in a congruent fashion perhaps repeated or serial echocardiography using newer software could be a viable alternative to show a PM-induced effect on cardiac parameters capable of promoting CHF in certain at-risk people (e.g. hypertensives or elderly)

What next?: Accept without revision

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.