Reviewer's report

Title: Ventilatory chemoreflexes and the apnea-hypopnea index in six-to-twelve year old children

Version: 2  Date: 16 December 2003

Reviewer: Francisco García-Royo

Reviewer's report:

General
In this paper, Fergosi and coworkers analyze the relationship between the chemosensitivity and the obstructive apnea-hypopnea index in 6 to 12 years old children. The study is well designed and carefully performed. Some relevant information is provided. However, there are some aspects that could limit the definitive acceptance of the paper.

Discretionary Revisions (which the author can choose to ignore)
- Page 2, L 1, Abstract. To change “ventilatory response to chemoreceptor” by “respiratory response to chemoreceptor”
- Page 3. Study by Marcus et al (ref. 5) is not recent (1994).

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)
- A new version of the rewritten manuscript should be recommended in order to facilitate the reading of the text.
- Abstract and Results. Correlation coefficient between OAHI and hypoxic chemosensitivity is a negative value.
- The authors write that the P0.1 technique does not need to be scaled for size. However, it should be mentioned that muscle strength and lung volumes can modify this measurement.
- Hypothesis study is not clearly defined
- For this reviewer is not evident why the patients were classified according to ethnicity. I suggest the excellent discussion of the subject by Kaplan KB. JAMA 2003;289:1709-1716.
- There are a great variability in the VE and P0.1 response to CO2 or hypoxic stimulation. Have you data on intra-subject reproducibility?
- Authors should include some comments about the possible underestimation of the chemosensitivity due to methodological aspects (facial mask, steady state, …)
- Table 1 must be suppressed. Anthropometric data and sleep parameters of the groups must be provided in table 2.
- Figure 5 could be dropped

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)
- Abstract. The last sentence is not supported by the study data.
- The selection of subjects must be described in detail.
- The paper shows that the respiratory response to chemoreceptor stimulation is related with OAHI. However, it would be useful if you tested the relationship between the chemosensitivity and other sleep parameters (arousal index, lowest SaO2 or time SaO2 < 90%, …)
- Generally, it is accepted that the P0.1/SaO2 relationship is more lineal than the P0.1/PETO2. Thus,
why hypoxic chemosensitivity was assessed as P0.1/PETO2?
- Results. There is some potential confounding sentences. Authors should clearly refer that the PETCO2 was not significantly higher in the group with high OSHI than in the children with low OAHI (table 2). In contrast, a significant (but weak) relationship was found between PETCO2 and OAHI. It is necessary to clarify these points and to justify these discrepancies.

What next?: Accept after minor essential revisions

Level of interest: An article of limited interest

Quality of written English: Acceptable

Statistical review: No

Declaration of competing interests:
None