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Sleep disorders breathing in chronic heart failure. Is adaptive servoventilation really the answer?

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## CORRESPONDENCE

### Sleep disorders breathing in chronic heart failure. Is adaptive servoventilation really the answer?



Dear Editor,

Despite much research, Continuous Positive Airway Pressure (CPAP) therapy is still the gold standard in initial treatment for central sleep apneas syndromes (CSAS) related to congestive heart failure (CHF). Additionally, adaptive servoventilation (ASV) may be an option for these patients.<sup>1</sup> CPAP emergent central apnea also known as complex sleep apnea syndrome (CompSAS) has been defined as the development of frequent central apneas or Cheyne–Stokes respiratory (CSR) pattern after introduction of CPAP therapy.<sup>2</sup>

We read with great interest the results of Correia et al. and consider that some aspects could be analyzed for proper extrapolation practice.<sup>3</sup> The present study approaches an important subject in the field of sleep disorder breathing (SDB). Various data has been published with the objective of defining which treatment is most appropriate for patients with SDB and CHF. However, some comments should be made about the present study.

First, the readers need a more precise definition when the diagnosis was made in CompSAS, central sleep apnea (CSA) and CSR. In this context, some questions need to be posed, was the diagnosis made during the baseline sleep study and was the baseline sleep study also a split-night sleep study? In relation to patients that were afterwards treated with PAP, should not the second sleep study include CPAP/Auto-CPAP/BPAP titration?

Second, according to Javaheri et al., CompSAS was transitory and eliminated after 8 weeks of CPAP therapy.<sup>4</sup> In the

study performed by Correia et al. the reader does not know how long the authors waited for CompSAS to disappear with regular CPAP therapy, before performing ASV titration.

Third, as previously stated in the literature, BPAP in the spontaneous mode may intensify central apnea caused by hyperventilation.<sup>1</sup> In relation to BPAP patients, the authors did not mention if S/T mode was used and which pressures were necessary for optimal treatment.

Fourth, parameters such as left ventricular ejection fraction (LVEF) and treatment compliance have been used to assess ASV vs. CPAP therapy in patients with both CHF and SDB.<sup>5</sup> In the present study the evaluation of LVEF was a limitation, since only 16 out of 33 patients had a cardiac function evaluation before and after PSG therapy titration and decision. An interesting fact was that in the present study no differences were encountered in terms of cardiovascular (CV) mortality.

Future studies should also focus on long-term effects of persistent CSA in asymptomatic patients, as well as alternative pharmacological interventions for patients with CSAS and HF.

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**Abbreviations:** ASV, adaptive servoventilation; CHF, congestive heart failure; CompSAS, complex sleep apnea syndrome; CPAP, Continuous Positive Airway Pressure; CSAS, central sleep apneas syndromes; CSR, Cheyne–Stokes respiratory; LVEF, left ventricular ejection fraction.

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## Reply to the letter to the editor "Sleep disorders breathing in chronic heart failure. Is adaptive servoventilation really the answer?"



Dear Dr. Telma Sequeira and Dr. Antonio M. Esquinas,

We thank you very much for the interesting questions about our article.

In the group of patients with CSA/CSR (40.6% of the total patients) the diagnosis was made in the beginning, with a polysomnography.

In the group with CompSAS, the diagnosis was made in patients who presented central sleep apnea after starting treatment with autoCPAP/CPAP for obstructive sleep apnea. These patients maintained a high AHI despite treatment (more than 2–3 months after the beginning of the treatment) so they were submitted to a split-night study about 4 months after the initial sleep study.

All the patients were submitted to a split night study and in all of the patients the technician always try first the treatment with PAP (CPAP/AutoCPAP/BIPAP) but because it did not resolved the central apnea, the technician switched to servoventilation, with excellent results.<sup>1,2</sup>

Only one patient was treated with BIPAP (S/T mode). The first pressures were 18/14 but the patient suddenly died and we had no time to optimize the best pressures for him.

As the study is retrospective, not all the patients had previously realized echocardiogram before PAP therapy so the comparison between the two ventilatory modes concerning cardiac function cannot be made with confidence and we have declared this fact as a limitation of the study.

The authors of the letter say that in the present study no differences were encountered in terms of cardiovascular (CV) mortality but this is not what we demonstrated: there was no difference in terms of non-fatal cardiovascular events (3 events in each group) but in PAP group 2 patients died of sudden death.

## Conflicts of interest

The authors have no conflicts of interest to declare.

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Kind regards,

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