

## Cardiac Cachexia – A Window to the Wasting Disorders

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### To The Editor

I read with interest the recent review by Okoshi and colleagues in the journal.<sup>1</sup> This was a thoroughly enjoyable read that reviewed the main areas of focus. I would like, however, to reinforce some of the arguments. In the section on neurohormonal blockade there has also been a successful phase 2 trial of the fourth generation beta-blocker espidolol in cancer cachexia.<sup>2,3</sup> Clearly beta-blockers can be helpful also

in cardiac cachexia given their crucial role in heart failure in general. Other cardiovascular drugs are also being explored for their beneficial or protective effects on skeletal muscle. These include, as the authors point out, the ACE inhibitor Imidapril. Others including trimetazidine are also being studied.<sup>4</sup> One issue of difficulty is that we are starting from the point of no effective therapies and testing therapies one by one. The true multi-system complexity of cachexia and yet its similarity across different organ failure syndromes implies it will be a multi-barrelled approach that may be needed to solve it. We may need to combine neurohormonal blockade, immune modulation, nutritional and exercise support with pro-anabolic agents to get real clinical benefits. Perhaps as the authors point out Cardiac Cachexia where several of these agents are already on board may be a good place to start. The time for a much greater focus on all cachexias, including of course cardiac cachexia, is truly here and now.<sup>5</sup>

### Keywords

Cachexia; Wasting Syndrome; Exercise; Nutritional Physiological Phenomena.

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## Reply

We truly appreciate the comments on our review manuscript published in the journal.<sup>1</sup> The authors reinforced our point of view by citing some papers published after the submission of our manuscript. We agree that we should immediately initiate a greater focus on cachexia of all causes aiming its prevention and treatment. While nutritional support has been long recommended for cachexia management, only more recently was exercise highlighted as a tool to manage muscle wasting and sarcopenia.<sup>2-4</sup> As correctly pointed out, due the capacity to prevent body weight loss in heart failure patients with reduced ejection fraction, neurohormonal blockade has also been evaluated in non-cardiac cachexia.

However, concerning other therapies such as immune modulation and pro-anabolic agents, there is no convincingly evidence for a positive response<sup>3,5,6</sup> suggesting that additional studies are needed before we can effectively prevent and treat cachexia associated with different diseases including chronic heart and renal failure, cancer, and chronic obstructive pulmonary disease.

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