Evaluating dyspnoea in acute heart failure: progress at last!

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This editorial refers to ‘The impact of early standard therapy on dyspnoea in patients with acute heart failure: the URGENT-dyspnoea study’, by A. Mebazaa et al. on page 832

It is remarkable how little we know about dyspnoea, the most common symptom experienced by patients with acute heart failure.¹² The innovative and important study reported by Mebazaa et al. makes for fascinating reading and raises important questions for clinical research and also for clinical practice.³

We simply do not know how to measure dyspnoea in acute heart failure and whether the commonly used instruments are sensitive to change, i.e. able to detect the effect of treatment.¹ Indeed, there are few studies on this question in chronic heart failure either.⁴ Despite this, the scientific community, industry, and regulators have already tested and rejected new treatments, at least partly on the basis of failing to improve dyspnoea more than conventional therapy.¹⁵

Mebazza and colleagues have now formally evaluated tools for the measurement of dyspnoea in acute heart failure. A key aspect of this study was the enrolment of patients very early after presentation to hospital (within 1 h of first evaluation by a physician). The assessments of dyspnoea were carried out in a number of different ways.³ First, they used a change score, asking patients at 6 h to describe how their symptoms had altered since baseline (using a 7-point Likert scale). Because of concerns that patients’ recall of baseline might be inaccurate, they also used two other measuring instruments applied at both baseline and 6 h, subtracting the baseline from the 6 h scores to quantify change [they used both a 5-point Likert scale and a 100 mm visual analogue scale (VAS) in this evaluation]. The third and most innovative approach was to measure dyspnoea not only in the sitting position but, if the patient was comfortable, also in the supine position.

Taking the sitting results first, both approaches and both types of scale appeared to be sensitive to change over time (presumably because of treatment). The full range of each scale appeared to be used, the responses obtained with each scale correlated, and the magnitude of change also appeared similar among the scales. It was notable, however, that up to 30% of patients showed little if any improvement (or remained moderately to severely breathless) after 6 h. In other words, there is still room for improvement, at least early after acute presentation (Figure 1).

A particularly interesting finding was the response in these patients to lying supine (this manoeuvre was conducted only in patients with no or mild-moderate dyspnoea when sitting). Even after 6 h, many reported worsening of dyspnoea in the supine position (here the VAS may have been somewhat more sensitive than the Likert scale). In other words, even those reporting relatively modest (and presumably improved) breathlessness when sitting were uncomfortable lying back. This again suggests an incomplete

Figure 1 Change in dyspnoea between baseline and 6 h (7 point Likert scale).

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Indeed, measurement of orthopnoea as well as sitting dyspnoea may be needed to evaluate fully treatments for acute heart failure (Figure 2).

Mebazza and colleagues have clearly helped to advance the field in relation to measurement of dyspnoea in acute heart failure and, therefore, the evaluation of new therapies in this condition.2 As they point out, patient selection and time from presentation to enrolment are other crucial factors in assessing treatments to reduce dyspnoea. While their study has clear practical applications and implications, more intangible problems remain. The greatest is interpreting the clinical importance (or importance to the patient) of the measurements made. How distressed were the patients at baseline, e.g. what does a baseline VAS of 5.7 mean? What does a 2 mm change on a VAS or a 1-point change on a 7-point Likert scale mean?

Correlation of the baseline measures with subsequent outcomes and, perhaps, parallel evaluation at baseline of the importance of current symptoms to the patient might be useful. Some studies in respiratory medicine have tried to look at what constitutes a ‘clinically important or meaningful’ change, and similar work is needed in acute heart failure.8–11

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References

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