Dear Dr Izumida and Dr Imamura

We appreciate your interest in our study and the very relevant commentary.

The ReDS method has previously been validated in selected patients with established heart failure and a varying degree of congestion. However, our study is one of the first to examine the usefulness of ReDS as a fast diagnostic test in unselected patients.

In the article ‘Remote dielectric sensing to detect acute heart failure in patients with dyspnoea: a prospective observational study in the emergency department’, we describe our findings so that the reader can assess the method’s value. And we agree with your interpretation.

Although the ReDS method has great potential as a new method to quantify lung fluid content in patients with heart failure, we also had several concerns regarding confounders, as pointed out by Dr Izumida and Imamura. This is precisely why we performed the study to examine the ReDS method in an unselected consecutive population in the emergency department.

We included consecutive patients in the emergency department; therefore, a high number of patients had lung diseases (50% had COPD and 37% had pneumonia). As also described in the commentary, these comorbidities might under and overestimate lung fluid amounts and result in false normal and false positive ReDS examinations for acute heart failure. We too suspect this is one of the reasons the ReDS method only has moderate diagnostic accuracy for acute heart failure in the emergency department.

Sub-analyses indicated that comorbidities effect the ReDS values, but our dataset did not have power enough to examine several subgroups.

Therefore, we are currently conducting other analyses to show, how CT verified abnormalities effect ReDS values. For this second study, we will also describe the overall reproducibility of ReDS, and the impact of measuring ReDS on both left and right hemithorax and measuring with the patient in supine position.

We once again thank Dr Izumida and Dr Imamura for their valuable input and commentary. We agree with the concerns and restricted our interpretation of the paper to conclude: ReDS is a quick and simple method to rule-in patients with pulmonary congestion on a CT scan. Thus, the method can be used as a screening method to ensure dyspnoeic patients with a high risk of heart failure quickly are referred to cardiological assessment. However, the ReDS method has a low sensitivity and cannot be used to exclude heart failure in the emergency department, especially not patients with heart failure with vascular congestion (and without radiological congestion).

MD Anne Sophie Olesen
On behalf of the author group.

Data availability

The authors have full control of all data, and some of the data underlying this article will be shared on reasonable request to the senior (last) author Prof. Olav W. Nielsen.

Conflict of interest: No conflicts to declare.