

## EDITORIAL COMMENT

## “Dysphagia” the Most Common But Most Undervalued Complication\*



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Post-extubation dysphagia (PED) is one of the most complained symptoms in the early postoperative period in patients undergoing cardiac surgery. Despite its frequent incidence and associated risks, there have been only few studies focusing on PED after cardiac surgery. Wide variations in its presenting symptoms and in surrounding clinical scenarios along with the absence of a universally accepted diagnostic method might have been hindering obstacles to conduct well-designed studies on post-cardiac surgical PED. For instance, flexible endoscopic assessment or video fluoroscopy are direct methods to aid diagnosing PED; however, their invasive nature seems to limit their practical availability, in which most patients remain with mild symptoms, while low cost-effectiveness of such modalities is another shortcoming. On the other hand, assessments through pain score systems or through patient self-report during oral intake may be fair alternatives of invasive diagnostic tests; however, their subjective nature and lower reliability are limitations because they can be affected by depression, delirium, and anorexia caused by painkillers, which are commonplace in post-cardiac surgical settings.<sup>1,2</sup>

Despite differing diagnostic criteria and its prevalence among researches on postoperative PED, there has been a general agreement that PED is associated with the level of patients' frailty and with adverse

outcomes. For instance, PED was observed more commonly among frailer patients or those with poorer treatment progresses, in which PED was more conspicuous in the acute phase after surgery, and these associations have reportedly been highlighted in cardiac surgical patients, who typically are frailer, bearing greater burdens of surgical and anesthetic traumas as compared with patients experiencing other diseases.<sup>3</sup> In this era of an aging population when increasing numbers of frailer and more morbid patients are being treated in cardiac operating rooms, it is time to take more interest in PED in association with frailty in the area of cardiovascular surgery.

In this issue of *JACC: Asia*, Ogawa et al<sup>4</sup> sought to explore the PED in patients undergoing elective cardiac surgery. The authors first focused on the impact of the preoperative frailty on the occurrence of the PED, which was diagnosed using Food Intake Level Scale. The frailty and physical activity of patients were measured by several methods, such as the Cardiovascular Health Study frailty index, Short Physical Performance Battery, the Psoas Muscle Index, and 6-minute walking distance. The study enrolled 644 subjects who underwent cardiac surgery between 2014 and 2020, of whom 14.8% were diagnosed with the PED. According to this study, patients who developed PED were older and had more preoperative comorbidities than did those who did not. In particular, the prevalence of frailty was significantly higher in patients who were diagnosed as having PED than in those who were not (50.0% vs 20.3%;  $P < 0.001$ ). Further analyses demonstrated that the PED was a significantly associated factor with the postoperative adverse outcomes, even if the PED occurred in transient forms. In multivariable analysis, preoperative frailty appeared as an independent predictor of the PED along with several key variables such as age, aortic surgery, and prolonged ventilation. Among the frailty tests, 6-minute walking distance was analyzed to be most closely related to the development of PED. From these study results, the authors suggested that

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risk stratification through preoperative examinations including tests on frailty may better identify patients at risk of PED so that appropriate interventions be conjugated to help improve postoperative outcomes.

In previous studies, the incidence of PED has been reported in 10% to 80% of patients depending on various diagnostic methods and on the risk levels of enrolled patients.<sup>3,5,6</sup> Denoted common risk factors for PED in heart surgeries were age, diabetes, renal insufficiency, heart failure, and prolonged operative times, which go well with the results from the paper by Ogawa et al<sup>4</sup> demonstrating the clinical implications of frailty, and PED itself was associated with greater risks of developing postoperative complications, longer intensive care unit and hospital stays, and increased cost.<sup>5,6</sup>

The triggers of PED have been regarded as damages related to oropharyngeal or orolaryngeal procedures such as intubation or transesophageal echocardiogram; however, the exact pathophysiology has not been fully understood.<sup>7,8</sup> Postoperative depression, general weakness, fatigue, pain, and nausea caused by narcotic analgesics also contribute to the occurrence or aggravation of PED, suggesting that the process is multifactorial.<sup>2</sup> In this sense, the functional swallowing test performed in the intensive care unit in the early phase may misdiagnose PED. As most PED without structural abnormality tends to improve over time as the patient's condition recovers, such PED may not be regarded as a form of complication, but rather as a phenomenon that reflects the patient's condition. This type of PED should be distinguished from more overt forms of PED that accompany structural problems such as vocal cord palsy, laryngeal nerve injury, or esophageal injury. It is regretful, however, that the diagnosis of the PED

was made by functional study only in the study by Ogawa et al<sup>4</sup> without further descriptions on whether there were additional tests done to differentiate those arising from structural lesions, and on the progress of PED afterward. For more meaningful risk stratification, further studies detailing the course of PED depending on the type of it (structural vs nonstructural) and the effect of additional treatment for PED seem needed.

Nevertheless, the paper by Ogawa et al<sup>4</sup> using the bedside functional swallowing test is believed to provide pieces of meaningful information—the Food Intake Level Scale is simple, easily reproducible, and consumes less additional resources, and therefore is viewed as an efficient screening test for more generalization in its uses. In addition, this is a rare study to diagnose frailty through multilateral examination in the field of cardiac surgery and to analyze its association with the PED. The paper also is believed to open the door for subsequent studies that may contribute to reducing the incidence of PED and thereby the incidence of complications by providing more insights into targeted rehabilitation in frail patients undergoing cardiac surgery.

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