Frailty and Polypharmacy in Older Patients with Otolaryngologic Diseases

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KEYWORDS

- Frailty • Polypharmacy • Balance disorders in the elderly • Dysphagia in the elderly
- Surgical decision making in the elderly
- National Surgical Quality Improvement Project
- Veterans Administration Surgical Quality Improvement Project
- Risk assessment index

KEY POINTS

- Within the specialty of otolaryngology, frailty is primarily manifested in older adults through increased risk for falls, dysfunctional swallowing, and impairment of pulmonary function delaying recovery after surgery.
- Multiple measures of frailty exist, some of which are tailored to assist in surgical decision making.
- Although knowledge of frailty and its implications is gradually increasing among otolaryngologists, dramatic knowledge gaps exist that impair care for older patients.
- Polypharmacy leads to considerable morbidity among older patients with otolaryngologic diseases, particularly those with balance disorders, xerostomia, and dysphagia.

INTRODUCTION

Numerous disorders commonly managed by otolaryngologists, specialists in diseases of the ear, nose, and sinuses; upper aerodigestive tract; and neck, are affected by aging. Several of these disorders are significantly impacted by frailty and overmedication. The readership of the *Geriatric Clinics of North America* is well aware of the science and clinical impact of frailty and overmedication and many of the specific comorbidities precipitated by frailty and overmedication. Unfortunately, clinical practice suggests this knowledge eludes most nongeriatric providers, including many otolaryngologists. This article reviews the salient points of how frailty impacts older patients with otolaryngologic disorders and the often unappreciated role of

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overmedication. The reader is encouraged to use this information, and other knowledge, in education of nongeriatricians.

FRAILTY

Frailty as a syndrome, and the science underlying it, is well known to the readership of this issue of the *Clinics*. Consequently, this introduction will be abbreviated. A designation of "frail" implies a lack of sufficient physiologic reserve to withstand stressors and is associated with an increased likelihood of death within 5 years. Frailty is independent of age or a specific disease process and cannot be assessed by a single test or laboratory value. It represents a compilation of multiple processes, including sarcopenia or progressive loss of muscle tissue. Together, these processes result in reduced physiologic reserve. Although the term *frail* is commonly applied to descriptions of older adults, when used in the context of health care delivery, it conveys more specific meaning and has broad implications for patients and their care givers.

SPECIFIC IMPLICATIONS FOR FRAILTY IN OTOLARYNGOLOGY

The 3 areas in which frailty most commonly affects otolaryngologic disease processes are balance, swallowing, and surgical outcomes. All of these are substantially impacted by alterations in neuromuscular function and numerous other systems. Adequate core muscle strength is required for balance as is neural function to support proprioceptive and vestibular contributions. Adequate tongue, oral, glottic, and pharyngeal strength is required for effective swallowing, which means adequate swallowing without aspiration. Substantial data link tongue strength and glottic closure strength to swallowing function. These disorders and the role of weakness in their development are discussed in more detail in the article by Leila J. Mady and colleagues, "Head and Neck Cancer in the Elderly: Frailty, Shared Decisions, and Avoidance of Low Value Care", in this issue. Both disorders of balance and swallowing are also heavily impacted by polypharmacy, which are addressed in the closing paragraphs of this article.

FRAILTY AND SURGICAL OUTCOMES

Without question, the area in which frailty has been most actively investigated by surgical investigators is in the postoperative course of older adults after surgical procedures. Surgery is inherently stressful and has been likened to "running a 5K." Surgical procedures involving the upper airway, those requiring general anesthesia, and procedures affecting respiration or deglutition have the potential to "tip" the frail weak older individual into respiratory failure and a host of other disorders such as postoperative delirium. Aspiration (saliva or feedings) is common after seemingly unrelated upper airway surgery. Those with adequate reserve (near the fit end of the continuum) are able to accommodate by increased respiratory effort, cough, and early ambulation with increased pulmonary excursion. However, those who are frail—often bed ridden, weak, frequently with poor laryngo-pharyngeal function—may not recover adequate function after the stress of surgery. This situation may lead to prolonged hospitalization and even reintubation, postoperative pneumonia, and the requirement for long-term care in skilled nursing facilities. Several studies identified the implications both in terms of mortality and in the risk for complications.

Makary and coauthors[1] at Johns Hopkins used a modification of the Cardiovascular Health Study (CHS), a physical phenotype to be described later, to prospectively assess nearly 600 patients older than 65 undergoing elective surgery. Patients that