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Frailty in perioperative medicine

As the proportion of older people in the population increases so too will the prevalence of age-related diseases, many of which are amenable to surgery. This will result in higher numbers of older people considering and undergoing surgical treatment. However, syndromes such as frailty, multimorbidity and functional dependence render this cohort prone to adverse postoperative outcomes. Identifying frailty early can facilitate timely shared decision making, resource planning and optimization of health to improve outcomes.

Definition and aetiology

The British Geriatrics Society (2014) best practice consensus defines frailty as:

'a distinctive health state related to the ageing process in which multiple body systems gradually lose their in-built reserves.'

Frailty exists on a spectrum from non-frail/fit/robust to frail. Two prevailing theoretical models exist:

1. The Fried phenotype of frailty model describes five features: shrinking, weakness, exhaustion, slowness and low physical activity. Three or more features indicate frailty, while one or two indicate 'pre-frailty'
2. The Frailty Index model (Rockwood and Mitnitski, 2007) measures frailty using a list of 70 conditions (deficits). The number of deficits determines a frailty score between 0 (none) to 1.0 (all). Frailty is present at 0.25, and a maximum of 0.67 is compatible with life.

The aetiology of frailty is not fully understood. Possible contributors include increased inflammatory cytokine levels, low serum albumin level and altered T-cell subtype populations (Puts et al, 2005).

Surgical implications

Frailty has a prevalence of approximately 10% in those over



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65 years of age, and 2-52% in the surgical population depending on surgical specialty and definition of frailty. It is associated with increased complication rates, length of hospital stay, dependence and mortality (Lin et al, 2016).

How to assess frailty

There is no consensus on the best tool for assessing perioperative frailty assessment (Buigues et al, 2015). For a multidomain diagnosis, the Fried criteria or Edmonton Frail Scale are commonly used tools. Single-domain markers of frailty (e.g. gait speed, grip strength and timed up-and-go) have been validated against the gold standards. New tools being operationalised in parts of the UK to accompany hospital referrals include the electronic frailty index where a frailty score is automatically generated from routine GP data.

Can frailty be modified?

Although frailty is usually progressive, targeted interventions (e.g. exercise, nutrition, drugs and psychosocial measures) can improve some individuals' frailty scores (Alvarez-Nebreda et al, 2018). It is not clear whether this reflects modification of the frailty process, or merely of its surrogate markers.

Perioperative management

People with frailty undergoing surgery should be managed by a multidisciplinary team. A validated example of this is the Proactive care of Older People undergoing Surgery (POPS) model (Dhesi, 2013). Preoperative assessment and optimization feeds into postoperative surgeon and geriatrician co-management of medical, surgical and rehabilitation issues, until discharge. In this model frailty tools can be used to stream referrals, provide objective results to inform shared decision making, and help focus the allocation of resources (e.g. critical care beds).



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Conclusions

Assessment and diagnosis of frailty is a key component of perioperative assessment, informing shared decision making and helping risk stratification and identification of targets for perioperative optimization.

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Further reading

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