Canterbury District Health Board
Te Poari Hauora o Waitaha

Clinical Pharmacology Bulletin

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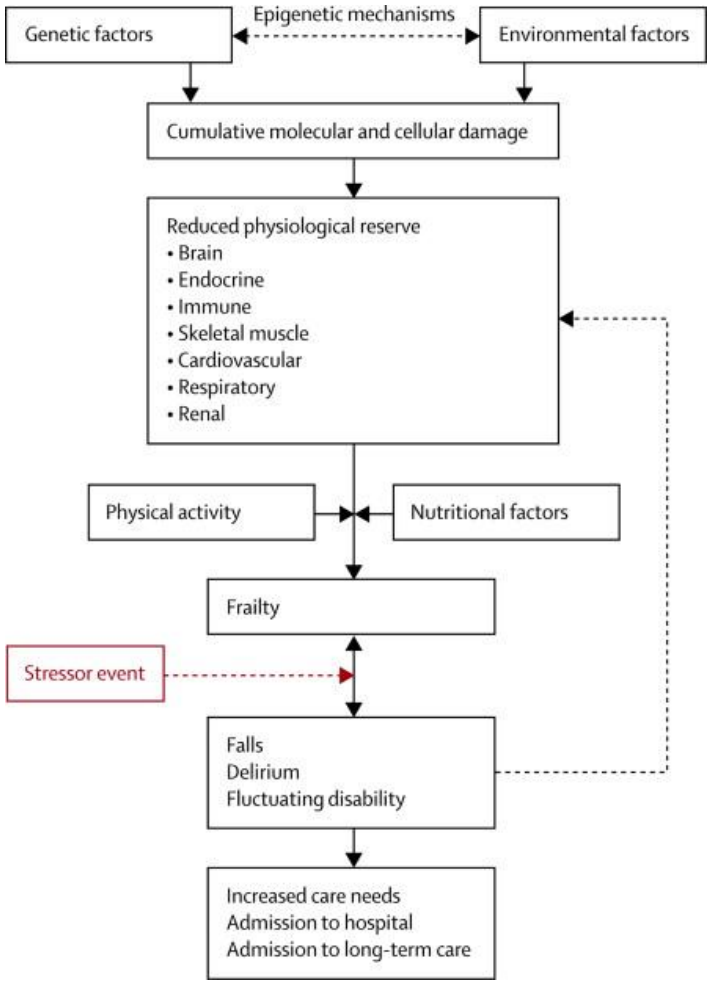
Prescribing in Patients with *Frailty*

Frailty is characterised by physiological decline in multiple systems, resulting in patient vulnerability. It is more common in the elderly with 25-50% of people older than 85 years being frail. Frail people are at greater risk of harm, including iatrogenic harm. This bulletin discusses the problems encountered with drug therapy in frail patients, and provides guidance for prescribing.

Definition of frailty

- Frailty is non-specific and multisystem. It is the cumulative effect of age-related physiological changes and specific disease states. It is characterised by decreased physiological reserve and impaired homeostasis, making a patient more vulnerable to minor stressors.
- There is no standard definition of frailty; however, one definition is where a patient exhibits 3 or more of: unintentional weight loss, exhaustion, weakness, slow walking speed and low physical activity.
- Frailty is both a consequence of and predisposes to poor health outcomes such as disability, hospitalisation and death.
- Frailty is also interrelated to a number of environmental, social, behavioural, and physical factors (see diagram below).

The pathophysiology of frailty



Source: Clegg, A et al. Frailty in elderly people. *Lancet* 2013; 381: 752–62

General prescribing-related problems in the frail

These include:

- Multiple morbidities and increased vulnerability to illness.
- Impaired homeostasis and physiological reserve.
- Impaired response to injury.
- Increased polypharmacy and medication non-adherence.
- Changes in pharmacokinetics and pharmacodynamics.

Pharmacokinetic and pharmacodynamic changes

Pharmacokinetic changes in the frail include:

- Impaired drug clearance with age and disease. Drug clearance (both renal and hepatic) declines by ~1% per year after the age of 40 and is further compromised by disease.
- Increased drug interactions (i.e. drug / drug interactions)

Pharmacodynamic changes in the frail include:

- Increased sensitivity to most drugs e.g. sedatives and other central nervous system (CNS) acting drugs.
- Decreased sensitivity to some drugs e.g. beta blockers.
- Increased adverse drug reactions (ADRs), even at normal concentrations.
- Impaired ability to compensate for these adverse effects.
- Increased drug interactions (i.e. drug / disease)

Assessing frailty when prescribing

It is important to assess a patient's areas of vulnerability before prescribing a drug. These areas include:

- Risk of falls (vulnerable to drugs that reduce blood pressure or CNS-active drugs).
- Risk of bleeding (vulnerable to antiplatelets/anticoagulants).
- Risk of gastrointestinal effects (vulnerable to constipation/diarrhoea and nausea/anorexia).
- Risk of CNS effects (vulnerable to delirium and instability).

Minimising risk - drug classes to avoid

There are a number of evidence-based lists (e.g. Beers Criteria*) that identify drugs that may cause more harm than benefit in the frail.

Potentially inappropriate medications include anticholinergics, benzodiazepines, opioids, non-steroidal anti-inflammatory drugs, proton-pump inhibitors and tricyclic antidepressants. These will be discussed in future bulletins.

It is important to note that clinical trials often exclude frail/elderly patients, so many drugs have not been studied where co-morbidity and polypharmacy is a problem. Also, ADRs pertinent to the frail (e.g. immobility, falls, confusion and incontinence) are often not used as trial end-points.

*http://www.americangeriatrics.org/files/documents/beers/2012BeersCriteria_JAGS.pdf

Minimising risk - principles of prescribing for frail people

Balanced and safe prescribing is difficult to achieve in the frail. Always consider:

- ***Non-pharmacological*** options.
- ***Potential harms and benefits*** (including life expectancy / quality of life).
- ***Patient autonomy*** – determine patient goals.
- ***Minimising harm - 'start low, go slow'***. Adjust for renal and hepatic impairment and potential drug interactions. Monitor for ADRs. ***Minimise use*** of potentially inappropriate drugs.
- ***Avoid polypharmacy***.
- ***Dose tapering*** – consider when desired effects are achieved.
- ***Frequent review of total drug therapy*** – "prune" if possible.
- ***Adherence*** – ensure the patient knows how to take a drug and is able to take it (e.g. physical or cognitive disabilities).