and oxybutynin, as well as some non-prescription medications) may cause the well-known range of adverse effects, including constipation, blurred vision, confusion, dry mouth and urinary retention. Urinary retention is of special concern in older males who may have prostate problems. Patients experiencing urinary frequency may, however, find some benefit from the anticholinergic effect of these drugs. Agents with antihistaminic properties (e.g. doxepin) can also be useful in patients with irritant skin conditions and where insomnia is troublesome.

Hyponatraemia

Hyponatraemia can present insidiously and if undetected can lead to serious morbidity (e.g. lethargy, apathy, confusion, agitation, disorientation, muscle twitching and cramps, irritability, convulsions, coma and death). The signs are not generally seen until the serum sodium concentration falls below 125 mmol/L (see 'Sodium' in 'Normal physiological values', Section D). Rapid decline in the serum sodium concentration and an age of over 70 years are factors that increase the likelihood and severity of symptoms. There are a number of causes of hyponatraemia, including excess fluid intake, medical conditions such as congestive heart failure, syndrome of inappropriate secretion of antidiuretic hormone (SIADH) and gastrointestinal loss of sodium as a result of vomiting. Medicines should be considered as a possible cause of hyponatraemia in older people. Overzealous use of diuretics may precipitate hyponatraemia, as may use of medicines that have been associated with SIADH (e.g. selective seratonin reuptake inhibitors, carbamazepine).

Other effects

Medicines causing blockade of α-adrenergic receptors (e.g. prazosin) may affect bladder control (especially in older women) and lead to urinary incontinence.

Nonsteroidal anti-inflammatory drugs (NSAIDs), including selective COX-2 inhibitors, should be used with great care in older patients since there is an increased risk of gastrointestinal, renal and cardiovascular adverse effects. In addition, these agents may cause central nervous system effects such as dizziness, confusion and psychosis.

Some common presentations of adverse drug reactions in the elderly are summarised under individual medicines in 'Clinical monographs', Section B. It is important to note that some medicines are best avoided or should be used with extreme care in older people. In those cases where an alternative is not available and the risk—benefit analysis supports the use of the medicine, monitor closely for effectiveness and adverse effects.

Multiple diseases and multiple medicines

Many older people have several chronic diseases, and this has a number of potential consequences:

- The diseases may further modify the pharmacokinetic handling of the medicine and the pharmacodynamic response to the medicine.
- More than one medicine may be needed for each condition and as more medicines are added to the medication regimen, the risk of poor adherence increases.
- It may not always be appropriate to treat a condition which may be a manifestation of normal ageing (e.g. inability to sleep right through the night) or an adverse effect of a medicine already being taken by the patient (e.g. mental confusion, incontinence).
- The potential for interactions and adverse drug reactions increases substantially as the number of medicines taken increases. Older people receiving multiple medications need careful monitoring.

Under-use of medicines

It is becoming increasingly recognised that undertreatment poses at least as much risk for elderly patients as the use of multiple medicines.[3] Many instances of under-use of appropriate drug therapy have been documented. These include the treatment of chronic atrial fibrillation, hypertension, hyperlipidaemia, congestive heart failure, asthma, depression, pain and osteoporosis. Possible factors contributing to undertreatment include insufficient evidence of clinical benefit due to under-representation of older patients in clinical trials, doctors' nonspecific fear of 'polypharmacy' and often a lack of effective coordination between hospitals and aged care facilities when patients move from one to the other. There is also a need for systems of care that improve drug safety and enhance adherence in elderly people on complex medication regimens. Efforts should focus on avoiding errors of omission in prescribing indicated medications, appropriate monitoring, patient education, and follow-up.

Factors affecting medication adherence

There are many factors that may compromise the ability of older people to use their medicines as intended. Not taking medicines as directed may lead to a sub-optimal clinical outcome and/or increase the risk of adverse drug reactions.

The complexity of the therapeutic regimen is an obvious factor that affects adherence. This is an important, but not the only, reason to minimise complex regimens involving multiple medicines.