Caring for people with dementia in care homes

LAY SUMMARY OF A STUDY RELEVANT TO DEMENTIA – ANTI-CHOLINERGIC MEDICINES

Effect of medications with anti-cholinergic properties on cognitive function, delirium, physical function and mortality: a systematic review.

Professor Chris Fox and others. Age and Ageing 2014; 43: 604-615

What this study is about

The researchers who have written this article were interested in which ‘block’ cholinergic nerves, so are called anti-cholinergic medicines. There are some medicines which are used because their anti-cholinergic effects are key to how they work. Examples of these are: medicines used for urinary frequency or incontinence (oxybutynin, tolterodine, solifenacin), medicines used for symptoms of Parkinson’s disease (orphenadrine, procyclidine) for bowel spasms (hyoscine, mebeverine).

Other medicines have the same effect of ‘blocking’ cholinergic nerves, but only as unwanted side effects. There are lots of examples of these medicines: some antidepressants (amitriptyline, doxepin), a few medicines used in epilepsy (carbamazepine), medicines used to treat nausea or dizziness (cinnarizine, hyoscine). Even some medicines for stomach ulcers can have these effects (cimetidine, ranitidine). Many antipsychotic medicines also have anticholinergic side effects (chlorpromazine).

There are even medicines you can buy over the counter which have anti-cholinergic effects. For example: medicines to treat allergic symptoms/itching (chlorpheniramine [Piriton]) or travel sickness (hyoscine [Kwells]), help you to sleep or reduce cough (diphenhydramine [Nytol; Benylin; Covonia]). Many pain-killers also have anti-cholinergic effects, including codeine, which is also in a lot of over-the-counter products (co-codamol, Ibuprofen and Codeine Tablets).

Some medicines cause anti-cholinergic effects more than others. Some people take several of these medicines for different reasons. As more medicines with anti-cholinergic effects are taken at the same time, the likelihood of getting unpleasant side effects increase, including cognitive impairment.

There is a standard way of measuring the amount of anti-cholinergic effect any person is experiencing due to their medicines, called the Anti-Cholinergic Burden (ACB) Scale. Medicines which score 3 on this scale have a lot of anti-cholinergic effects, while those scoring 1 have fewer. You can add up someone’s total score, based on the different medicines they take, to see how much anti-cholinergic effects their medicines may be causing.

So, for example, someone taking amitriptyline (score 3) as well as diphenhydramine (score 3) would have an ACB score of 6, which is very high. Someone only taking codeine (score 1) would have an ACB score of 1, which is low. There are lots more medicines with anti-cholinergic effects. Those listed above are just some examples.
What they did

These researchers have found all the academic papers published between 2002 and 2013 which tried to establish whether anti-cholinergic medicines affect four aspects of peoples’ lives:

1. **Cognitive function** This is the process by which people become aware of, perceive or understand ideas. It involves thinking, reasoning, remembering, attention, judgment.
2. **Delirium** This is a state of mental confusion, when someone is not really aware of what is going on, can’t converse properly, and may become very agitated. It is often short-lasting and can be brought on by physical illness, fever, infections or even surgery.
3. **Physical function** This means things like walking, getting dressed, shopping, working, and general activities.
4. **Mortality or death**

What they found

They found 46 studies which had measured effects of anti-cholinergic medicines on patients. There was a total of 60,944 patients in these 46 studies.

33 of the studies looked at cognitive function. In most studies cognitive function was measured using the Mini Mental State Examination (MMSE). This is a commonly used test which doctors use to help diagnose dementia and assess its progression and severity. In 23 of the 33 studies, the anti-cholinergic medicines were linked with a decline in cognitive function, but the other 10 studies did not show this.

8 of the 46 studies looked at physical function and 5 of the 8 studies found there was some deterioration in physical function in patients taking anti-cholinergic medicines.

None of the studies which looked at delirium and death showed that anti-cholinergic medicines increased the likelihood of either of these happening.

What this means

This was a good study, so we can trust the results. It shows very clearly that medicines with anti-cholinergic effects do impair cognitive function and possibly also physical function. Both of these could for example increase the risk of falls. Importantly, the results do not show that anti-cholinergic medicines increase the risk of dementia. Nor do these medicines increase the risk of delirium or death.

How you can use this information

It is better to avoid medicines with anti-cholinergic effects in anyone who has even a slight degree of cognitive impairment or who has memory or thinking problems greater than normal for their age. Although these medicines do not cause dementia, they can make the symptoms of dementia worse. They can also cause loss of cognitive or physical function in anyone, particularly older people. Prescribing guidance states that medicines with anti-cholinergic effects should be avoided altogether in older people.

Ask the pharmacist before buying any medicine over the counter to tell you if it contains an ingredient with anti-cholinergic effects.

If you want to find out whether any of the medicines you or someone you care for may have anti-cholinergic effects or you are concerned that any medicine may be causing someone to have declining cognitive or physical function, you should talk to your pharmacist or doctor.