

Drug side effect linked with increased health risks for over 65s

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A side effect of many commonly used drugs appears to increase the risks of both cognitive impairment and death in older people, according to new research led by the University of East Anglia (UEA).

As part of the Medical Research Council's Cognitive Function and Ageing Studies (CFAS) project, the study is the first systematic investigation into the [long term health](#) impacts of 'anticholinergic activity' – a known potential side effect of many prescription and over the counter drugs which affects the brain by blocking a key neurotransmitter called acetylcholine. The findings are published today by the *Journal of the American Geriatrics Society*.

Medicines with some degree of anticholinergic effect are wide-ranging and many are frequently taken by older people. The groups with the greatest impact include: anti-depressants such as Amitriptyline, Imipramine and Clomipramine; tranquilisers such as Chlorpromazine and Trifluoperazine; bladder medication such as Oxybutynin; and antihistamines such as Chlorphenamine. Other drugs with an anticholinergic effect include: Atenolol, Furosemide and Nifedipine for heart problems; painkillers such as Codeine and Dextropropoxyphene; the asthma treatment Beclometasone; the epilepsy treatment Carbamazepine; and Timolol eyedrops which are used for glaucoma.

The large cohort study was launched as part of the drive to find ways of reducing risk factors for dementia which affects 820,000 people in the UK. The UEA researchers worked in collaboration with colleagues at

University of Cambridge, Indiana University and National Health Service clinicians. The project was funded by the Medical Research Council (MRC) and the US National Institute on Aging.

More than 13,000 men and women aged 65 and over from across the UK were included in the two-year study. Around half were found to use a medication with potential anticholinergic properties.

In the study, each [drug](#) taken by the participants was given a ranking based on the strength of its anticholinergic activity, or AntiCholinergic Burden (ACB) - 0 for no effect, 1 for mild effect, 2 for moderate effect and 3 for severe effect.

The key findings were:

- Twenty per cent of participants taking drugs with a total ACB of four or more had died by the end of the two-year study, compared with only seven per cent of those taking no anticholinergic drugs - the first time a link between anticholinergics and mortality has been shown.
- For every additional ACB point scored, the odds of dying increased by 26 per cent.
- Participants taking drugs with a combined ACB of five or more scored more than four per cent lower in a cognitive function test than those taking no anticholinergic medications – confirming evidence from previous smaller studies of a link between anticholinergics and [cognitive impairment](#).
- The increased risks from anticholinergic drugs were shown to be cumulative, based on the number of anticholinergic drugs taken

and the strength of each drug's anticholinergic effect.

- Those who were older, of lower social class, and with a greater number of health conditions tended to take the most anticholinergic drugs.

Lead author Dr Chris Fox, clinical senior lecturer at Norwich Medical School, University of [East Anglia](#), said: "This is the first large scale study into the long-term impact of medicines which block acetylcholine - a common brain neurotransmitter - on humans, and our results show a potentially serious effect on mortality. Clinicians should conduct regular reviews of the medication taken by their older patients, both prescribed and over the counter, and wherever possible avoid prescribing multiple drugs with anticholinergic effects.

"Further research must now be undertaken to understand possible reasons for this link and, in particular, whether and how the anticholinergic drugs might cause the increased mortality. In the meantime, I strongly advise patients with any concerns to continue taking their medicines until they have consulted their family doctor or their pharmacist."

Co-author Prof Carol Brayne, principal investigator of the MRC CFAS project at the University of Cambridge, said: "It is important to scrutinise medications given to older people very carefully to try to minimise harm as well as gain the desired benefit. The admirable wish to give the best possible treatment with good evidence for individual conditions has to be balanced against the fact that in many older people with multiple conditions this will lead to accumulated risk such as that shown by this scale."

Ian Maidment, a mental health pharmacist working within the NHS, added: "One of the issues is that as we [age](#), we tend to be prescribed

more medicines which have an anticholinergic effect, increasing the overall burden."

Dr Susanne Sorensen, head of research at the Alzheimer's Society, said: "It is very important that we have a clear picture of the side effects of drugs commonly taken by [older people](#) with cognitive impairment and other conditions. This robust study provides valuable findings, and must be taken seriously. However it is vital that people do not panic or stop taking their medication without consulting their GP.

"We would urge people to have regular appointments with their doctor to review all drug treatments they are taking. This will help ensure they are on the best medications for their conditions, and that any side effects have been taken into consideration."

Prof Chris Kennard, chairman of the MRC's Neuroscience and Mental Health Board, which funded the research, said: "The Medical Research Council invests in cohort studies like CFAS because they provide vital clinical information through observation. Such projects require long-term commitment to fulfil their potential but having supported cohort studies for well over half a century, MRC funding and collaborations have made the UK an international leader in this field."

Provided by University of East Anglia

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