Focus on re:ACTION

Drug-induced hallucinations

Key points

Hallucinations are serious reactions.

Hallucinations are one of the five most commonly reported serious adverse drug reactions to CSM West Midlands.

Major drugs and drug classes associated with hallucinations include antimuscarinic agents, antiparkinsonian drugs, antidepressants, beta adrenoceptor antagonists and opiates.

What are hallucinations?

Hallucinations are “false sensory perceptions, unfounded on external realities, and outside the cognitive control of the affected individual.” Hallucinations caused by drugs are commonly visual. They can be an isolated adverse effect but often occur as a part of drug-induced psychosis.

Hallucinations may consist of unformed abstract shapes of flashes of light; or can be more vivid in colour and have complex forms such as animals or people. Some may manifest as a misperception, such as a hanging coat taking the form of a person.

Drug-induced auditory hallucinations may be unformed tinnitus, bangs, whistles or thuds, although they may take the form of singing [see re:ACTION No 5, 1994].

Patients sometimes re-experience the hallucinations as ‘flashbacks’, mainly after use of recreational drugs such as lysergide (LSD), cannabis, ketamine and ecstasy.

It can sometimes be difficult to establish if a hallucination is caused by a drug or an underlying illness.

Up to 30% of adverse drug reactions in primary care may be neuropsychiatric.

Reported hallucination cases

The West Midlands Centre for Adverse Drug Reaction Reporting has received 163 reports of drug-associated hallucinations.

Top 10 drugs or classes associated with hallucinations.

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<tr>
<th>Class</th>
<th>Drug Name</th>
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<tr>
<td>SSRIs</td>
<td>tramadol</td>
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<td>bupropion</td>
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<td>venlafaxine</td>
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<td>quinolones</td>
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<td>proton pump inhibitors</td>
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<td>zopiclone</td>
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<td>ropinirole</td>
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<td>β-adrenoreceptor antagonists</td>
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Review

Antimuscarinic agents such as benzhexol and procyclidine are known to cause visual hallucinations.

Between five and thirty percent of patients treated with levodopa develop hallucinations,\(^1\) which can be vivid. Those with a psychiatric history appear more at risk. The hallucinations are dose-related and re-
solve on discontinuing the drug. Other anti-parkinsonian drugs such as pergolide and ropinirole have also been associated with hallucinations.

Donezepil has been associated with hallucinations, and since this drug is used in Alzheimer’s disease, such adverse effects can remain undetected.

Bupropion rarely causes hallucinations (less than one in 10,000 patients) and those with a history of psychiatric illness may be more at risk.

Opiates and opioids such as pethidine and pentazocine can cause hallucinations. In February 1995, the Committee on Safety of Medicines warned prescribers of the risk of hallucinations induced by tramadol.\(^2\)

Hallucinations are a known adverse effect of SSRI antidepressants, as well as other antidepressants such as tricyclics.

Hallucinations may occur on the withdrawal of medication. Visual\(^3\) or auditory hallucinations\(^4\) can occur after the withdrawal of tramadol. Patients taking long-term baclofen therapy may suffer from hallucinations following sudden withdrawal of the drug.\(^5\)

Quinolones, antibiotics such as ciprofloxacin, are known to cause psychiatric reactions, including hallucinations,\(^6\) and the elderly may be more at risk.\(^7\)

Proton pump inhibitors (e.g. omeprazole and rabeprazole) are also reported to cause hallucinations. Beta-adrenoceptor antagonists (especially lipid soluble ones) cause hallucinations rarely.

Hallucinations can also occur in a dose-related manner as a component of steroid-induced psychosis.

Drug-induced hallucinations will normally resolve upon withdrawal of the causative drug.

**Prescribing advice**

The elderly, and those with a previous history of psychiatric illness, are at increased risk of drug-induced hallucination.

**Reporting points**

Hallucinations are serious and frightening reactions and as such should be reported via the Yellow Card scheme. This applies both to new drugs with black triangle (▼) status and established drugs.

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Further resources

5. O’Rouke F. *BMJ* 2001; 323: 870
7. Stahlmann R; Lode H. *Drugs & Aging* 2003; 20: 289-302

Prepared by the West Midlands Centre for Adverse Drug Reaction Reporting (November 2003)
http://www.csmwm.org