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Hallucinations in the Elderly

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Objectives

- Recognize a hallucination in an elderly patient
- Use the characteristics of a hallucination to inform diagnosis
- Manage hallucinations using psychosocial and environmental strategies
- Propose a medication to treat hallucinations in an elderly patient

Hallucinations

- False sensory experiences
- Seem real
- Generated by the mind
- No external stimulus
- may be
  - seen (visual)
  - heard (auditory)
  - felt (tactile)
  - smelled (olfactory)
  - tasted (gustatory)

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Illusions

- Distorted perceptions
- Based on a real external stimulus
- E.g. waving curtain appears as a menacing face
- Most characteristic of delirium

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Is this a hallucination?

- Consider illusions (e.g. reflection in mirror)
- Consider errors of language (e.g. person names an object inaccurately)
- Consider errors of time perception time perception

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Delusion

- Fixed, false belief
- Can be associated with hallucinations (but not always)
- E.g. My husband is cheating on me.

Which of the following are Hallucinations?

A. I smell burnt toast
B. My neighbour is stealing from me
C. I see flies all over my wall (points to marks on wall)
D. I heard my dead husband calling me
E. My wife is not my real wife, she's an imposter

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Which of the following are Hallucinations?

A. I smell burnt toast [olfactory hallucination]
B. My neighbour is stealing from me [delusion]
C. I see flies all over my wall (points to marks on wall) [illusion]
D. I heard my dead husband calling me [auditory hallucination]
E. My wife is not my real wife, she's an imposter [delusion]

What Causes Hallucinations?

- Delirium
- Dementia
- Psychiatric Illnesses
  - Depression, mania, schizophrenia
- General medical conditions
- Substance Use/Withdrawal
- Medications
- Sensory impairment

- In short, almost everything!

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Pathophysiology of hallucinations

- Any lesion causing excitation in the sensory pathways or association cortex
- Loss of sensory input can produce disinhibition in the sensory pathways, causing hallucinations
- Lesions affecting the attentional system in the brainstem

Rules of thumb…

- Auditory hallucinations
  - Characteristic of psychiatric illness
  - Commonly seen in Alzheimer's dementia
- Visual hallucinations
  - Suggest a non-psychiatric etiology
  - Delirium, Lewy Body Dementia
- Tactile
  - Suggest substance use/withdrawal
- Olfactory and Gustatory hallucinations
  - Suggest medical etiology

- There are many exceptions!

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Mrs. A.

- 93 yo woman
- 6 months of auditory hallucinations
- Trials of Donepezil (Aricept), Olanzapine (Zyprexa), Risperidone (Risperdal) not tolerated or ineffective
- Current medications:
  - Hydrochlorthiazide; Calcium Carbonate; Vitamin D; Risperidone 0.75 mg qhs; Amitriptyline 50 mg qhs

- The best next step is:
  - A) increase Risperidone (Risperdal)
  - B) add Memantine (Ebixa)
  - C) discontinue Amitriptyline (Elavil)
  - D) try Rivastigmine (Exelon)

Mrs. A.

- Answer:
  - C) discontinue Amitriptyline
- Amitryptyline was discontinued
- Hallucinations resolved
- Risperdal was discontinued and remission was sustained

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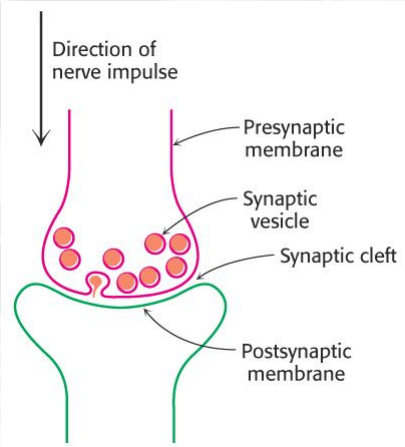
Rule of thumb…

- Any new symptom in an elderly person, including hallucinations, is very likely a side effect of a medication

Anticholinergic Drugs

- Acetylcholine: associated with learning and memory
- Many drugs block Acetylcholine
- Anticholinergic effects include: dry mouth, urinary retention, constipation, confusion
- Anticholinergic effects can cause hallucinations, often visual



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Commonly used anticholinergic drugs

Amitryiptyline (Elavil)
Benztropine (Cogentin)
Carbamazepine (Tegretol)
Clozapine (Clozaril)
Cyclobenzaprine (Flexeril)
Dimenhydrinate (Gravol)
Diphenhydramine (Benadryl)
Hydroxyzine (Atarax)
Meperidine (Demerol)
Nortriptyline
Olanzapine (Zyprexa)
Paroxetine (Paxil)
Quetiapine (Seroquel)
Tolterodine (Detrol)

ANTICHOLINERGIC COGNITIVE BURDEN SCALE
Developed by the Aging Brain Program of the IU Center for Aging Research

Drugs with Definite Anticholinergic Effects

Generic Name	Brand Name
Amantadine	Symmetrel™
Amitriptyline	Elavil™
Amoxapine	Asendin™
Atropine	Sal-Tropine™
Benztropine	Cogentin™
Brompheniramine	Dimetapp™, Lodrane™
Carbamazepine	Tegretol™
Carbinoxamine	Histex™, Carbihist™
Chlorpheniramine	Chlor-Trimeton™, Chlorphen™
Chlorpromazine	Thorazine™
Clemastine	Tavist™
Clomipramine	Anafranil™
Clozapine	Clozaril™
Cyclobenzaprine	Flexeril™
Darifenacin	Enablex™
Desipramine	Norpramin™
Dicyclomine	Bentyl™
Dimenhydrinate	Dramamine™, others
Diphenhydramine	Benadryl™, others
Doxepin	Sinequan™, Zonalon™
Flavoxate	Urispas™
Hydroxyzine	Atarax™, Vistaril™
Hyoscyamine	Anaspaz™, Cystospaz™, Levsin™
Imipramine	Tofranil™
Meclizine	Antivert™, Bonine™
Meperidine	Demerol™
Methocarbamol	Robaxin™
Nortriptyline	Pamelor™
Olanzapine	Zyprexa™
Orphenadrine	Norflex™
Oxcarbazepine	Trileptal™
Oxybutynin	Ditropan™
Paroxetine	Paxil™
Perphenazine	Trilafon™
Promethazine	Phenergan™
Propantheline	Pro-Banthine™
Quetiapine	Seroquel™
Scopolamine	Scopace™, Transderm Scop™
Thioridazine	Mellaril™
Tolterodine	Detrol™
Trifluoperazine	Stelazine™
Trihexyphenidyl	Artane™
Trimipramine	Surmontil™

Other drugs associated with hallucinations

- Antidepresants
- Tramadol and other opiates
- Quinolones
- Proton pump inhibitors
- Clarithromycin
- Zopiclone
- Ropinirole and other dopaminergic agents
- Beta agonists
- Opiates

- Drug-induced hallucinations can be unformed (e.g. abstract shapes, flashes, bangs, whistles, thuds) or complex (e.g. images, music)

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Review the meds

Rationalizing an elder's medication list is one of the most powerful interventions we have!

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Delirium

An acute, potentially reversible, confusional state

Associated with impaired attention/level of consciousness

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Delirium

- Key Features
  - Change from usual mental state!!!
  - Fluctuates (may appear normal at times)
  - **Altered level of consciousness (hyper/hypo or mixed)**
  - Inattention (you must repeat questions because patients attention wanders)
  - Perceptual disturbances (visual hallucinations and paranoid delusions)
  - Disorganized thinking (rambling, tangential speech)
- Psychomotor changes (hyper or hypoactive)

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Delirium is serious

- Patients with delirium have:
  - prolonged length of stay in hospital
  - worse rehabilitation/functional outcomes
  - higher institutionalization rates
  - increased risk of cognitive decline
  - higher mortality rates
- Delayed recognition → worse outcomes

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Typical Hallucinations of Delirium

- Often visual
  - Can be complex, e.g. snake in hospital room
  - Often distorted or frightening
- Tactile, auditory are possible as well

Look for the underlying cause

- Medications are common culprits (up to 40%)
- The underlying cause is often not found (15-20%)

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Hallucinations and substance use

- Alcohol and prescription drugs are most common
- Hallucinations can occur in intoxication, withdrawal, and in chronic use
- Alcohol withdrawal delirium is a medical emergency
  - Thiamine, benzodiazepines, admission

Hallucinations in Psychiatric Illnesses

- Auditory most common
- Often critical or pejorative
- Small percentage of schizophrenia has onset after age 50
- If present in depression:
  - Psychotic depression is poorly responsive to meds
  - Consider electroconvulsive therapy (ECT)

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Charles Bonnet Syndrome

-complex visual hallucinations in a psychologically normal person

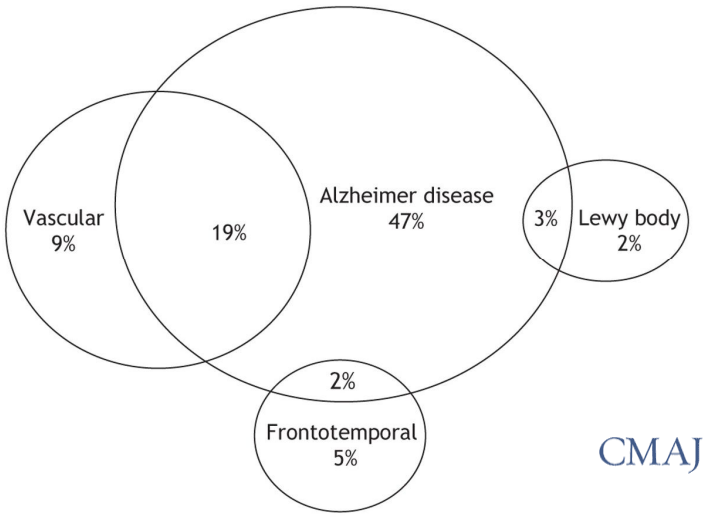
-his 87-year-old grandfather, who was nearly blind from cataracts, saw people, birds, carriages, buildings, tapestries and scaffolding patterns

-no treatment required if non-distressing

-analogous to tinnitus and musical hallucinations in severe hearing loss

Born	March 13, 1720 Geneva, Republic of Geneva
Died	May 20, 1793 Genthod near Geneva

Types of dementia clinically diagnosed in Canadian memory clinics



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Common Dementias and their Hallucinations

- Alzheimer's Dementia
- Dementia with Lewy Bodies
- Vascular Dementia
- Frontotemporal Dementia

Alzheimer's and Hallucinations

- Prevalence
  - 25% of patients
    - 4-76%, median 23%
    - Visual 4-59%, median 19%
    - Auditory 1-29%, median 12%
    - Other types 0.5-8%, median 4%

Bassiony M, et al, 2003

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Alzheimer's and Hallucinations

- Timing and Course
  - Rarely manifest early in the illness
  - Overall prevalence increases slowly with dementia progression
  - Once present, they frequently recur

Bassiony, M et al, 2003

Lewy Body Dementia and Hallucinations

- May account for up to 20% of late-onset dementia
- Complex, well-formed visual hallucinations common in early stages
- Continuum with Parkinson's
- Neuroleptic sensitivity in 50%

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Other Dementias

- Hallucinations are not characteristic of vascular dementia but can occur in some cases
- Hallucinations are more rare in fronto-temporal dementia

Treatment

- Accurate assessment
  - Really a hallucination?
  - Who/what/where/when?
  - Persistent?
  - Significant Distress?
- Psychotic symptoms are prevalent above age 85 (10%) and do not always require treatment

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Correct vision and hearing

- Clean glasses
- Right prescription
- Repair cataracts
- Hearing aids, working and properly installed

Treatment -- Environmental

- Adequate lighting

Adequate lighting can be a problem in many settings

Improved lighting reduces visual hallucinations

Eliminate shadows, busy patterns

Mirrors and TVs may trigger misperceptions

Figure I: An example of lighting problems a) glare from doors at the end of the corridor, b) uneven lighting, and c) low light levels.

Eunice Noel-Wagonner, Center of Design for an Aging Society

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Treatment - Psychosocial

- Personalized music/headphones/IPod
- Social contact and conversation
- Prayer and singing
- Earplug in one ear

Treatment - Pharmacological

- Cholinesterase Inhibitors
  - May be particularly effective in Lewy Body/Parkinson's dementia, in which there is a profound anticholinergic deficit
  - Alzheimer and Vascular, first line because of low harm and impact on underlying illness
  - No efficacy in Frontotemporal

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Treatment – Pharmacological

- Antipsychotics
  - Caution: neuroleptic sensitivity in Lewy Body Dementia
  - 50% of these patients may have severe reactions with increased mortality
  - In other dementias, 1.7% increased risk of stroke, death
  - Weigh risks and benefits
- Anticonvulsants (e.g. Gabapentin)
  - Anecdotal evidence in particular cases, especially in context of sensory impairment

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Antipsychotics for hallucinations

- **Indicated** for major psychiatric illnesses
  - Keep using them!
- only **modest efficacy** in agitation/psychosis in dementia (e.g. 40% reduction in symptoms)
  - No drug has FDA indication
- **Short-term** efficacy – but symptoms persist!
  - Periodic trials of reduction q6mo-1y

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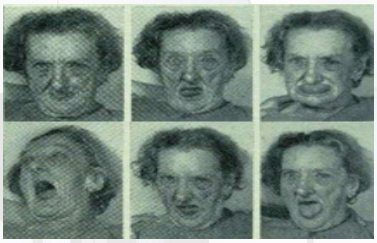
Risks

- Small increased risk of stroke, death
  - (RR: 1.6-1.7)
  - conventional antipsychotics probably worse!
- Constipation!



- Akathisia (agitation)
- Extrapyramidal symptoms
- Tardive dyskinesia
- Sedation
- Orthostatic hypotension
- Weight gain
  - diabetes
  - hyperlipidemia

Antipsychotics to consider

- Risperidone
  - Significant Parkinsonism
  - Rapidly dissolving tablet available
- Olanzapine
  - Weight gain and diabetes
  - May be particularly bad for Lewy Body and neuroleptic sensitivity
  - Rapidly dissolving tablet, short-acting injection available
- Aripiprazole
  - Some evidence for effectiveness, possibly not as robust
  - Weak partial agonist at D2 receptor
  - Dopamine-serotonin system stabilizer
  - low weight gain
- Quetiapine
  - Low D2 blockade, but sedating
  - Limited evidence for effectiveness
- Clozapine
  - Particularly effective in Parkinson's
  - No D2 blockade
  - Low doses often effective
  - Agranulocytosis, sedating, anticholinergic, weekly blood monitoriing
  - Probably underused but significant toxicity

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Bottom Line for Hallucinations in Dementia

- Drugs are modestly effective and carry significant risk
- Consider non-pharmacological intervention
- Consider risks of not treating
- Informed consent
- Attempt to discontinue periodically

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