education

ART OF MEDICINE

Not going on a journey: histamine toxicity



According to folklore, itchy feet prophesy travel and itchy palms predict that a person will get money. But are they

actually symptoms of histamine toxicity?

Recently, one of us (PW) noticed a peppery taste while eating tuna, followed by intense itching of the soles of his feet, a forceful heartbeat, headache, light headedness, and vasodilatation of the head, chest, and feet. Vasodilatation subsided after he took chlorphenamine. Suspecting scombroid fish toxicity, he collected urine samples—confirming the diagnosis.

Scombroid fish toxicity is the most common cause of fish poisoning worldwide, but many cases are probably misdiagnosed as allergy. It is caused by ingestion of histamine produced by bacterial action in certain oily fish, such as tuna and mackerel, which contain histidine. Cooking does not destroy histamine and ingestion of a large amount causes the reaction. Histamine is metabolised to N-methylhistamine and N-methylimidazole acetic acid, concentrations of which are raised in urine.

PW wondered whether endogenous histamine release might also make the soles of the feet itchy. He asked five patients with generalised urticaria which part of the body was itchiest—four said the soles of feet, palms of hands, or both.

These findings suggest that the soles and palms are particularly sensitive to increased levels of histamine, whether endogenous or exogenous. Patient websites point to palmo-plantar pruritus being a troublesome symptom that is overlooked by doctors.

Peter Wilmshurst, honorary consultant cardiologist, University Hospital of North Staffordshire Michael Hallworth, consultant clinical biochemist, Shrewsbury and Telford Hospital NHS Trust We welcome contributions to this column via our online editorial office: https://mc.manuscriptcentral.com/bmj.

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FAST FACT—GOUT VERSUS SEPTIC ARTHRITIS

Acute attacks of crystal arthritis, either gout or pseudogout, are characterised by:

Sudden onset

Severe joint pain reaching peak intensity within 12-24 hours Joint swelling and erythema

Complete resolution, typically within one to two weeks.

If these features are present, and the first

metatarsophalangeal joint is affected, then gout is the most likely diagnosis. Onset of septic arthritis is typically less acute.

Learning • For more information visit BMJ Learning (http://bit.ly/1PflGyo).

PRACTICE UPDATES

People with learning disabilities to critically inspect NHS services Patients with learning disabilities can face difficulties trying to access services, from GPs to specialist cancer centres. This could be one of the reasons behind inequalities in their health outcomes, according to an NHS England update. People with learning disabilities will be assessing NHS services and advising on how services can better meet their own and other patients' needs. This is a planned expansion of the NHS quality checkers programme.

http://bit.ly/24hzwZh

Motor neurone disease referrals to neurology

One in five people diagnosed as having motor neurone disease (MND) in the past three years took one year to be referred to a neurologist according to results from the largest survey of patients with MND. Fifty two per cent of these patients were first referred to other services, including physiotherapy, orthopaedics, and ENT. The "red flag tool" facilitates early detection of the signs of MND and swifter referral

to neurology. A quicker diagnosis can affect patients' access to services and help manage the rapid progression of their symptoms. http://bit. ly/1TSKSDm



CPD/CME

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consider how you plan to improve your practice as a result of your learning. http://learning.bmj.com

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CLINICAL UPDATE

Delirium and agitation at the end of life

Christian M G Hosker,¹ Michael I Bennett²

WHAT YOU NEED TO KNOW

- Consider delirium in any patient in palliative care who shows a change in behaviour
- Investigate underlying causes where appropriate in line with the patient's preexpressed wishes
- Optimise the patient's environment and review drugs
- Consider low dose haloperidol first line in people with delirium who are distressed or considered a risk to themselves or others, and in whom conservative management is ineffective or inappropriate
- Additional sedation with lorazepam or midazolam may be appropriate if delirium is irreversible and haloperidol alone does not reduce the distress and risks

Box 1 | What are the symptoms?

- Reduced level of consciousness
- Inability to focus and maintain attention
- Confusion and disorientation
- Daytime somnolence and restlessness at night
- Illusions and hallucinations
- Shifts from hypoactivity to hyperactivity
- Increased or decreased flow of speech
- Increased reaction time
- Enhanced startle reaction

Box 2 | Recognised causes of delirium⁵

- Metabolic disturbance:
- Hypercalcaemia
- Hyponatraemia or hypernatraemia
- Dehydration
- Hypoglycaemia or hyperglycaemia
- Organ failure

• Drugs: benzodiazepines, corticosteroids, anticholinergics, opioids, and other drugs with psychoactive properties

- Sepsis
- Brain pathology:
- Primary tumour or metastases
- Cerebrovascular ischaemia
- Status epilepticus
- Hypoxia
- Drug withdrawal states
- Haematological causes:
 - Disseminated intravascular coagulation
 - Anaemia

¹Leeds Liaison Psychiatry Service, Leeds and York Partnership Foundation Trust, Leeds ²Academic Unit of Palliative Care, Leeds Institute of Health Sciences, School of Medicine, University of Leeds, Leeds **Correspondence to:** C M G Hosker christian.hosker@

nhs.net Cite this as: BMJ

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Find this at: http://dx.doi. org/10.1136/bmj.i3085

HOW PATIENTS WERE INVOLVED IN THE CREATION OF THIS ARTICLE No patients were directly involved in the creation of this article. Delirium is common in the last weeks or days of life.¹ It can be distressing for patients and those around them. Successful management involves excluding reversible causes of delirium and balancing drugs that may provoke or maintain delirium while appreciating that most patients want to retain clear cognition at the end of life.

What is delirium?

Delirium is the abrupt onset of fluctuating confusion, inattention, and reduced awareness of the environment. Symptoms can affect different areas of cognition (memory, orientation, language, visuospatial ability, or perception) and may include hallucinations and disturbances in the sleep-wake cycle (box 1).² Delirium is classified into hyperactive (restlessness and agitated behaviour predominate), hypoactive (drowsiness and inactivity predominate), and mixed subtypes. The more subtle changes associated with the hypoactive form are often missed.⁴

What are the causes of delirium?

Delirium occurs when physical factors, often occurring simultaneously (box 2), act on a physiologically vulnerable brain, leading to confusion, changes in perceptions, and altered behaviours.⁶ In the last days of life, delirium has been described as the visible culmination of end stage multiorgan failure compounded by other non-reversible factors.⁷

In an observational study of 213 terminally ill delirious patients with cancer,⁸ the main causes





In the last days of life, delirium has been described as the visible culmination of end stage multiorgan failure compounded by other nonreversible factors identified were hepatic failure, drugs, pre-renal azotemia, hyperosmolality, hypoxia, disseminated intravascular coagulation, organic damage to the central nervous system, infection, and hypercalcaemia. In the study, the occurrence of hyperactive delirium and the requirement for sedation correlated with hepatic failure, opioids, and steroids, while dehydration related conditions were statistically significantly associated with hypoactive delirium.

Who gets delirium at the end of life?

A systematic review suggested that 13-42% of patients admitted to palliative care inpatient units have delirium.⁹ A cohort study of patients with advanced cancer on a palliative care inpatient unit estimated that this rose to 88% in the days and hours before death.¹

Pre-existing cognitive impairment, increased age, an already severe illness state, and infection reduce the brain's ability to resist delirium.¹⁰ Smaller observational studies in cancer patients found that lower performance status, the presence of lung cancer, and shorter time since diagnosis were associated with developing cognitive impairment.¹¹ A retrospective study in cancer patients reported that male sex and the presence of a primary or metastatic brain tumour predisposed to delirium.¹²

Poor prognostic factors for delirium, predictive of non-recovery from the episode, include severe delirium, irreversible precipitating factors, greater degree of

Decisions on whether to investigate should consider the likely nature of the underlying cause, the stage of the illness, and the goals

cognitive impairment, the hypoactive subtype, and a previous episode of delirium. Delirium caused by hypoxic or metabolic encephalopathy is particularly resistant to reversal,⁷ whereas delirium precipitated by drugs, electrolyte abnormalities, and infection is more likely to be reversible.^{8 13}

How to identify delirium at the end of life

The core clinical features of delirium are the rapid onset of disturbed attention, fluctuating levels of consciousness, cognitive impairment, psychomotor disturbance, and disruption of the sleep-wake cycle. In our experience, within palliative care these core features often show as purposeless repetitive movements, such as plucking at bed sheets and removing clothes, accompanied by moaning and facial grimacing. Emotional changes, such as fear, anxiety, and agitation are common. Multifocal myoclonus, which may reflect opioid toxicity, renal failure, or other drug related toxicity, may be seen.¹⁴

Validated tools exist for the screening and diagnosis of delirium (box 3) and can be used by non-specialists as a first step towards diagnosis. It may not be practical to use these tools in severe cases, where cooperation and communication are limited, and they often lack sufficient sensitivity and specificity to be solely relied on. Clinicians often use a global clinical assessment based on detailed history taking, information from care givers, and pattern recognition⁷ to make the diagnosis. If the diagnosis is in doubt, colleagues from palliative medicine or psychiatry can provide support.

Box 3 When and how to investigate

- Consider the stage in the dying process and any agreed goals of care
- Review prescriptions for culpable drugs and the possibility of a withdrawal reaction
- Consider the possibility of alcohol or other substance withdrawal
- Use collateral history to determine rapidity of onset and baseline cognitive function
- If consistent with the goals of care, investigate for other underlying causes and treat where appropriate. Tests include:
 - Investigations for metabolic and haematological abnormalities
- Blood cultures
- Midstream specimen of urine
- Chest radiography
- Lumbar puncture
- Electroencephalography
- Computed tomography or magnetic resonance imaging

Box 4 | How to optimise the environment for patients with delirium

Promotion of the normal sleep wake cycle

- Ensure lighting levels mimic those for the time of day
- Reduce levels of noise and stimulation at night

Safety

- Undertake a risk assessment of whether the patient is a risk to him/herself or others
- Use 1:1 nursing if necessary
- Use pressure pad alarms—floor mats fitted with pressure alarms that alert the nurses if a patient wanders out of the room or away from bed
- Remove hazardous objects, such as high beds, electrical cords, knives, and cigarette lighters

Re-orientation

- Clearly display a clock and provide other visual clues to the day and date, such as a daily schedule or newspapers
- Ensure patients have access to their glasses, hearing aids, and interpreters if necessary
- Keep communication clear and consistent
- Identify members of staff to be a point of contact to promote a familiar environment and establish continuity
- Encourage family members to visit and help orient the patient

What investigations are required in palliative care?

Delirium is often a progressive, irreversible process in the last stages of life. However, some causes, particularly drugs, may be reversible and probably account for 30-50% of cases.¹¹³ Decisions on whether to investigate should consider the likely nature of the underlying cause, the stage of the illness, and the goals of care pre-established with the patient (box 4).⁷

How is delirium managed in palliative care?

There is robust evidence that multicomponent delirium prevention interventions, such as educating nursing staff, assessing and changing drugs, encouraging mobilisation, and improving the patient's environment, can reduce the incidence of delirium by about 30% in high risk medical and surgical inpatients.²¹ Evidence to support this approach in palliative care is lacking.²² Management of delirium in palliative care differs little from other settings in broad terms. The focus is on providing a safe optimised environment (box 5), treating reversible causes, controlling symptoms with drug and non-drug interventions, and communicating with patients and family members.

Treating reversible causes

Review drugs and modify those that cause or potentiate delirium (see box 2).

Overall, only about half of delirium episodes are potentially reversible, although the odds of reversibility are higher when opioids and other psychoactive drugs are precipitants.¹ Because there are often several factors, they all need to be dealt with simultaneously to reverse up to 50% of delirium episodes.¹

If there are concerns about neurotoxicity in patients taking opioids, consider a dose reduction or opioid switch. One observational study of 190 patients treated with

Delirium precipitated by drugs, electrolyte abnormalities, and infection is more likely to be reversible opioids showed that 29 of 42 patients who developed confusion and 10 of 15 who developed hallucinations improved on opioid switching.²³ A critical review in 2006 of opioid switching to reduce delirium suggested overall benefit, although the exact benefit was hard to define.²⁴

A recent review of parenteral nutrition and hydration at the end of life suggested that delirium was the only aspect of terminal symptom control that was likely to benefit from hydration.²⁵ If an infective cause is suspected, a trial of antibiotics may improve symptoms of delirium.

Symptom control

Medical strategies for delirium focus on reducing agitation and perceptual abnormalities.

Although there are several relevant clinical practice guidelines,^{10 26-28} a Cochrane review in 2012²² could not make any drug recommendations in end of life care because of the paucity of evidence. End of life care was specifically excluded from the National Institute for Health and Care Excellence (NICE) guidance on delirium,¹⁰ leaving clinicians without pragmatic guidance although, in practice, clinical management is broadly similar.

NICE guidance on delirium recommends considering short term haloperidol or olanzapine in people with delirium who are distressed or considered a risk to themselves or others and in whom verbal and nonverbal de-escalation techniques are ineffective or inappropriate.¹⁰ Although this guidance was not aimed at palliative care, it can help determine when antipsychotics are appropriate in delirium in palliative care.

Haloperidol remains the drug of choice in delirium, despite limited evidence of efficacy from randomised controlled trials (RCTs).²⁹ Like other antipsychotics, it is associated with extrapyramidal side effects in people over 70 years.³⁰ It is less sedating than atypical

Box 5 | Communication with families and friends

- Explain that the patient's concentration and memory are impaired, and that delirium probably reflects how frail the patient has become as a result of the illness and infection or the effect of drugs
- Suggest that limited investigations (such as blood tests) and a drugs review might help to diagnose and reverse the delirium if consistent with any advance care plan
- Highlight the importance of a calm and consistent environment
- Explain that this may be the start of a more rapid and irreversible decline in the patient's health
- Whether the delirium is reversible or not, provide reassurance that control of the patient's distress is the priority

EDUCATION INTO PRACTICE

- Do you routinely observe and ask during consultations whether your medically ill patients are alert and orientated?
- Does your team know how to recognise and manage delirium that is distressing to patients or putting them or others at risk of harm?

antipsychotics such as risperidone or olanzapine and is useful where less sedation is required, such as in hypoactive states. A small RCT in 30 patients with AIDS related delirium compared haloperidol, chlorpromazine, and lorazepam.³¹ Patients in the haloperidol and chlorpromazine groups showed improvement in the delirium rating scale (DRS), whereas those who received lorazepam did not. Those taking lorazepam had greater side effects than those in the chlorpromazine and haloperidol groups. In an uncontrolled observational study of the harms and benefits of haloperidol in palliative care (119 inpatients and outpatients over 10 days), 12% of patients experienced side effects, most commonly somnolence or urinary retention.³²

A recent RCT in 239 delirious palliative care patients (published abstract only) compared placebo, haloperidol, and risperidone over four days.³³ Provisional results suggest patients prescribed haloperidol or risperidone had greater specific delirium symptoms (communication, behaviour, and perceptual disturbance) at study end than those prescribed placebo and also required more midazolam rescue doses.

The low doses of antipsychotics used for delirium are less likely to be associated with extrapyramidal side effects, but avoid combinations of antipsychotics and other dopamine blocking agents such as

QUESTIONS FOR FUTURE RESEARCH

What strategies are effective for the prevention of delirium in palliative care?³⁸ How effective or harmful are antipsychotics compared with placebo, and at what doses?

How effective or otherwise are non-pharmacological strategies?

What are the most effective strategies for supporting families of those affected by delirium?

metoclopramide. Medium to longer term use of antipsychotics is also associated with increased risk of stroke, ³⁴ but these drugs are likely to be used short term in end of life care.

Despite NICE recommending antipsychotic options for delirium, ¹⁰ benzodiazepines are preferred when Lewy body dementia or Parkinson's disease coexist because they do not exacerbate extrapyramidal symptoms. Patients with severe agitation (anxious, restless, and aggressive behaviour) may also require a short acting benzodiazepine, such as lorazepam or midazolam. This can be combined with haloperidol.

Management of refractory delirium

A recent systematic review suggested that refractory delirium is the most common reason for palliative sedation at the end of life.³⁵ Palliative sedation is the monitored use of drugs to reduce awareness in dying patients and relieve suffering from refractory symptoms. The same systematic review found no evidence that the use of such proportionate sedation shortened life, although this finding was based on non-randomised samples.

Palliative sedation may be appropriate for patients with advanced disease at the end of life when the cause of delirium is judged to be irreversible; the manifestations of delirium, such as frightening cognitions and hallucinations, overwhelm the patient, or the patient's behaviour is a threat to him/herself or others. The aim is to control distress during the dving process. Sedation is a consequence rather than the objective of treatment. Sedating antipsychotics such as levomepromazine (methotrimeprazine) are titrated alone or together with a benzodiazepine such as midazolam. These are usually given as a subcutaneous infusion but can be given as regular injections during a titration period or when infusion devices are unavailable. In rare cases where these combinations do not control distress, phenobarbitone injections or infusions can be used, although these recommendations are not based on evidence from clinical trials and would require specialist palliative medicine expertise.

Helping families understand delirium

Delirium can be distressing for families.³⁶ The hypoactive form is often missed by clinicians, and family members may be better placed to report the subtle changes in presentation that may herald its onset. A detailed observational study of the experience of delirium in inpatients with cancer found that mean scores for distress were higher in the spouses and family care givers who had witnessed the delirium than in affected patients.³⁷ Furthermore, a qualitative study of 37 family care givers found that many thought that analgesics caused the delirium.³⁶ The same study found that distress was lowest in care givers who were educated about the risk of delirium before it occurred.

Discuss delirium, the likely causes, and what it means for the patient with family care givers (box 5). Competing interests: None declared.

WHAT YOUR PATIENT IS THINKING

A voice from the streets about the drug "Spice"

Ian Millar draws on personal experience of living on the streets and living and working in hostels and day care centres. He volunteers with Pathway (www.pathway.org.uk), as part of its Expert by Experience programme, advising medical and political bodies on the healthcare of homeless people



In over 30 years of recreational drug use, I have never been as worried about any drug as I have about "Spice." Spice is a generic name for a range of synthetic recreational drugs that are spreading quickly on the streets.

Last March I visited a hostel with 70 residents, four of whom were regular users of Spice. This year I stayed in a hostel with 30 residents, and more than half were daily users.

Spice is sold in bags of combustible vegetable matter, which has been sprayed with a variety of chemicals, each producing slightly different versions of the same type of buzz. Because of the way Spice is mass produced, there can be huge inconsistencies in its strength from batch to batch.

Spice is usually mixed with tobacco and smoked as a joint, but more experienced users smoke it neat in pipes. This produces a much more dramatic effect—similar to that of LSD or magic mushrooms although Spice seems to be many times more powerful.

I have noticed that Spice triggers a heightened awareness of the senses, particularly hearing, as users quite often find noises amusing. One guy I looked after found the acoustics of the toilet bowl hilarious between bouts of projectile vomiting.

Depending on the mood that people are in when they take Spice, their imaginations run wild in any direction. A common trip I've seen is for users to believe they are communicating with aliens. It can be unsafe to try to restrain or inhibit them because in their mind you could be an alien invader; they may act in a panicked and violent manner, even attacking and biting those who are trying to treat them.

FURTHER RESOURCES

Novel Psychoactive Treatment UK Network. Guidance on the clinical management of acute and chronic harms of club drugs and novel psychoactive substances (http://neptuneclinical-guidance.co.uk/wp-content/uploads/2015/03/ NEPTUNE-Guidance-March-2015.pdf)



I have never been as worried about any drug as I have about Spice

In my experience, users are prone to blackouts, which seem almost a brain reboot in response to sensory overload. If standing, users will start to go floppy and bend at the knees. They often collapse, opening up the possibility of serious physical harm.

Luckily, the effects do not last long, so users should be spoken to calmly and reassuringly; you should try to get them to sit or lie somewhere safe, and wait for about 15 minutes. By then they should be more coherent.

If you are not sure whether someone has used Spice, smell his or her breath. A user's breath has an unpleasant acrid burnt smell, which is very pungent. You may also notice a change in the user's voice, with a slightly higher pitch—like when helium has been inhaled, but not as squeaky.

I've met a few people who have had no ill effects when withdrawing from prolonged use of Spice, but most people tell me they have classic withdrawal symptoms such as cramping, sweating, and twitching. I think the biggest worry is the psychological effect, as many people have told me that the use of Spice leads to very low moods, with thoughts of self harm or suicide.

We have absolutely no idea of the short term effects of using Spice, let alone the long term effects on the brain.

Every packet carries a warning that says it all: NOT FOR HUMAN CONSUMPTION. I have never been as worried about any drug as I have about Spice. Competing interests: None declared. Cite this as: *BMJ* 2016;353:i2708 Find this at: http://dx.doi.org/10.1136/bmj.i2708



WHAT YOU NEED TO KNOW

- The range of drugs known as Spice is a growing problem on the streets and may already be affecting some of your patients
- If you suspect a patient is using Spice, look for clues such as a strong burnt smell on his or her breath
- Don't get in the way of people who are using this drug; talk calmly and try to get them to sit or lie down for 15 minutes until the initial high subsides
- Very little information is available on where Spice is affecting healthcare services and staff. If you are aware of this as a problem in your area, contact spiceaware@gmail.com to help map the spread of the drug

• For series information contact Rosamund Snow, patient editor, rsnow@bmj.com

10-MINUTE CONSULTATION

CPD/CME

Management of a O.5 CREDIT new pregnancy in a woman with chronic hypertension

Pippa Oakeshott,¹ Lucy C Chappell²

WHAT YOU NEED TO KNOW

- At first presentation of a newly pregnant woman with chronic hypertension, arrange prompt referral to an obstetrician, preferably one specialising in hypertension
- Such women have an increased risk of pre-eclampsia, preterm delivery, small for gestational age infant, or stillbirth
- Ensure that you assess the safety of her antihypertensive drugs in pregnancy and change them that day if necessary—for example, stop angiotensin converting enzyme inhibitors

A 28 year old woman attends surgery saying that she is six weeks pregnant with her second baby and would like to be referred to the midwives. She says that she had a problem with high blood pressure in her previous pregnancy three years ago and has been taking nifedipine and ramipril since then, as she continued to have high blood pressure when she tried to stop taking her tablets. She wonders if she should now stop these tablets and whether they are safe for her baby.

What you should cover Ask about

- *Current pregnancy*—Date of last menstrual period to estimate her current gestation (and expected date of delivery); some antihypertensive drugs need to be stopped once a positive pregnancy test has been confirmed (box 1).
- *Previous pregnancy*—Admissions for high blood pressure, gestation, indication for delivery, and health problems for her or the baby to indicate likelihood of recurrence. She is at increased risk if problems occurred at an earlier gestation.

• Previous investigations for high blood pressure—Has she seen a specialist or had renal ultrasonography, electrocardiography, or other tests for causes of secondary hypertension as recommended by National Institute for Health and Care Excellence (NICE) guidelines?¹

• *Other medicines*—Ask about all antihypertensive drugs to identify those that need switching, folic acid, vitamin D, and any other drugs.

Box 1 | Antihypertensive treatment in pregnancy³

Consider using:

- Labetalol (unless the patient has asthma)
- Nifedipine
- Methyldopa (warn that sleepiness and low mood may occur)

Stop:

- Angiotensin converting enzyme inhibitors
- Angiotensin receptor blockers
- Thiazide diuretics

²Women's Health Academic Centre, King's College London, UK

This is part of a series of occasional articles on common problems in primary care. *The BMJ* welcomes contributions from GPs.

¹Population Health Research Institute, St George's, University of London, UK

Correspondence to: P Oakeshott oakeshot@sgul.ac.uk

Clinical examination

- Take her blood pressure according to the British Hypertension Society protocol (wide cuff if her upper arm circumference is ≥33 cm, correct position, not talking, seated for five minutes). Take her blood pressure three times, one minute apart, and average the last two readings.
- Check her urine for proteinuria to assess for coexistent renal disease, and repeat the pregnancy test if there is any doubt about her pregnancy status.
- Arrange baseline hypertension blood tests including renal function and glycated haemoglobin (HbA_{1c})/ random blood glucose. Arrange an electrocardiogram if there is no previous record. (Note that lipid concentrations are unreliable in pregnancy, so they should be checked after delivery if appropriate.)

What you should do

Explain that around 2-3% of pregnant women (around 16 000-24 000 women each year in the United Kingdom) already have high blood pressure when they become pregnant (that is, chronic hypertension). As this increases the risks for the pregnancy, you should refer her to an obstetrician and she will need extra appointments for monitoring.

Around a quarter of pregnant women with chronic hypertension develop superimposed pre-eclampsia. Nearly a third will have a preterm birth.² If she has had pre-eclampsia in one pregnancy, she is more likely to get it again in future pregnancies.³ In addition, women who have had a hypertensive pregnancy are at increased long term risk of stroke and cardiovascular disease. For women with chronic hypertension, it is particularly important in pregnancy to avoid putting on excess weight, continue exercise, eat a low salt diet, and stop smoking.

Explain the symptoms of preeclampsia, and advise her to go to the pregnancy assessment unit the same day if she experiences:

- Severe headaches (increasing intensity unrelieved by regular pain killers)
- Visual problems, such as blurred vision, flashing lights, or double vision

- Persistent stomach pain and/or vomiting
- Breathlessness
- Sudden swelling of the face, hands, or feet.

Make a management plan

- Arrange prompt referral to an obstetrician specialising in hypertension, alongside the midwifery booking, highlighting the chronic hypertension. Enclose results of investigations, especially renal ultrasonography and echocardiography if previously done.
- Assess the safety of her antihypertensive drugs and change them that day if necessary, stopping her angiotensin converting enzyme (ACE) inhibitor (box 1). Retrospective cohort studies have reported that ACE inhibitors, angiotensin receptor blockers, and thiazides may be associated with congenital malformations. Other studies have suggested that the risk relates to the underlying chronic hypertension rather than to drugs,⁴ but current practice remains cessation.
- Explain that poorly controlled blood pressure can occasionally cause fits or a stroke, which could be risky for both her and the baby. Doctors consider that these complications are more harmful than taking tablets to prevent them. Explain that almost no drugs are licensed for use in pregnant women and respond to her concerns about benefits and risks. Although we cannot be completely sure that the drugs will have no effects on the baby, doctors will choose the

Box 2 | Antihypertensive treatment in breast feeding³

Consider using:

- Labetalol (unless the patient has asthma), although adherence to three times daily medication may be poor in postnatal women
- Atenolol if a once daily formulation is preferred
- Nifedipine
- Enalapril (if cardiac/renal protection is needed) Avoid/stop:
- Methyldopa (owing to side effects of depression and sleepiness)
- Other angiotensin converting enzyme inhibitors and angiotensin receptor blockers
- Diuretics

EDUCATION INTO PRACTICE

How do you ensure that pregnant women take only recommended antihypertensive drugs?

INFORMATION FOR PREGNANT WOMEN

National Institute for Health and Care Excellence. Hypertension in pregnancy: diagnosis and management. Information for the public. http:// publications.nice.org.uk/ifp107

HOW PATIENTS WERE INVOLVED IN THE CREATION OF THIS ARTICLE

A patient acted as a peer reviewer for this article, and the following changes were made as a result: a simpler explanation of the potential benefits and harms of antihypertensive treatment in pregnancy

> blood pressure tablets that are known to be safest in pregnancy and are recommended in national guidelines.³

Ρ

- Start folic acid to prevent neural tube defects from today (if not already taking it). Start aspirin at 12 weeks' gestation to reduce the risk of pre-eclampsia.³
- Aim for a diastolic blood pressure of 85 mm Hg (based on a recent large trial).⁵ The optimal systolic blood pressure is less clear, but guidelines advise below 150 mm Hg.³ Very low blood pressure may be associated with impaired fetal growth, so aiming for even lower blood pressures is not recommended. The role of home blood pressure monitoring in pregnancy is not yet established.⁶ However, if she wants to use a monitor validated for use in pregnancy, sharing home readings with people involved in her care seems pragmatic.6
- Refer her to the pregnancy assessment unit if her blood pressure is persistently above 140/90 mm Hg or if she has one plus or more of proteinuria on dipstick testing.
- Once she is back home with the baby, her blood pressure should be checked every other day until it is below 140/90 mm Hg, and then once or twice weekly until her six week postnatal check.⁷
- Check that her antihypertensive drugs are safe for breast feeding (box 2).⁷

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SISONDAID TO92

Mild cough and decreased breath sounds in an 82 year old woman

She has an oleothorax, which in the past was used as a treatment for tuberculosis.

CASE REVIEW

An unusual finger injury

- 1 Bruising (eg post-trauma), paronychia, herpetic whitlow, ortvirus intection, Milker's nodule,
- tollowed by the appearance of a painless blue-black maculopapular lesion that does not 2 Oth virus infection is the most likely diagnosis because of the history of an animal bite pyogenic granuloma, keratoacanthoma, and osteomyelitis.
- rule out differential diagnoses. Diagnosis can be confirmed by electron microscopy or DNA 3 Orf infection is usually diagnosed clinically, but a finger radiograph and wound swab might .inemevom to egner iter.
- surgery specialists if there are concerns or complications. 4 Basic wound care, advice about hand hygiene, and discussion with plastic and reconstructive

that would help doctors with postgraduate

Cite this as: BMJ 2016;353:i2080

We welcome contributions examinations.

We also welcome

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primary care.

endgames

submissions relevant to

and sent her for chest radiography. What does the chest radiograph show (figure)? Submitted by David C Howlett and Joseph Dalby Sinnott Patient consent obtained.

An 82 year old woman presented to her general practitioner with a tickling cough and symptoms of an upper respiratory tract infection. Her blood gas saturations were normal and she was otherwise well. However, she had a history of tuberculosis and had undergone an unknown operation many years ago. The GP thought that she had decreased breath sounds at the right apex

1 What are the differential diagnoses? 2 What is the most likely diagnosis? 3 What investigations might be ordered? 4 How is this condition managed? Submitted by David A Pettitt, Ashwin Pai, Emma Bradbury, Suresh Anandan, and Mahendra Kulkarni Patient consent obtained. Cite this as: BMJ 2016;353:i2680

CASE REVIEW An unusual finger injury

A 39 year old female farmer with no medical history presented to the emergency department with a painless swelling over her right index finger. The problem started two weeks earlier after she had been bitten by a lamb. After the injury the finger appeared "bruised." This bruising continued and a swelling gradually developed. She reported no pain, changes in sensation, or reduced range of

On clinical examination she was afebrile and haemodynamically stable. Her right index finger exhibited a full range of movement and was neurovascularly intact. The finger was not tender on direct palpation and it seemed to be the same temperature as her other fingers. The finger had a laceration on the radial aspect proximal to the nail fold, with a demarcated and raised area of reddishblue discoloration measuring about 2 cm × 1.5 cm (figure). There was no palpable lymphadenopathy within the axilla.

movement.



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MINERVA A wry look at the world of research

Cerebral infection with Taenia solium

A previously healthy Latin American man presented with transient tingling of his left face and limbs. Clinical examination and blood tests were unremarkable. Interictal electroencephalography suggested a right posterior epileptogenic focus. Brain magnetic resonance imaging showed an eccentric nodule within a ring enhancing lesion in the right parietal lobe, consistent with tapeworm scolex and pathognomonic for neurocysticercosis. Neurocysticercosis is the most common central nervous system helminthic infection. With increasing global migration its diagnosis is likely to rise. Clinical signs vary according to number, size, location, and viability of cysts. Parenchymal neurocysticercosis usually

Tidying rooms and tending hearts

The cleaner slips out, looking uneasy as the consultant and her entourage sweep in. The patient is very ill and may die. A few words are said, then the cleaner comes back to replace the medical team. Hospital cleaning staff's experiences with seriously ill and dving patients are explored in a mixed methods study from Germany (Palliat Med doi:10.1177/0269216316648071). Patients often talk to them about general topics and sometimes about illness and death, which can cause feelings of discomfort and

GPs' first impressions and cancer diagnosis

helplessness.

GPs need to balance an acceptance of uncertainty with vigilance for symptoms that may indicate serious disease. This skill was assessed in an interactive telephone consultation study presenting six case scenarios to 90 British GPs (Med Decis Making doi:10.1177/ 0272989X16644563), three of which were possible cancers. The "diagnostic anchoring" phenomenon was well illustrated: when GPs initially verbalised the possibility of cancer, the odds of subsequently diagnosing it were on average five times higher, while the odds of appropriate referral doubled.

has a good prognosis; meningeal, intraventricular, or giant cysts have poorer outcomes. Treatment includes anthelmintics, corticosteroids, anticonvulsants, and rarely surgical cyst removal.

Simona Lattanzi alfierelattanzisimona@gmail. com, neurology specialist, Claudia Cagnetti, neurology specialist, Leandro Provinciali, professor of neurology, Mauro Silvestrini, professor of neurology. Neurological Clinic, Department of Experimental and Clinical Medicine, Marche Polytechnic University, Italy

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Sharing decisions in old age

Health decisions for older people often need to balance the evidence of potential harms versus benefits in the light of decreasing life expectancy. There may be trade-offs between quantity and quality of life. An open access systematic review of shared decision aids for older people in *BMC Medical Informatics and Decision Making* (doi:10.1186/s12911-016-0281-8) describes the current state of the art.

ICU for DKA outcomes

Diabetic ketoacidosis (DKA) severe enough to require intensive care has a mortality of 35% over the next five years (*J Intensive Care Soc* doi:10.1177/1751143716644458). A retrospective cohort study of Scottish ICUs found 386 such patients over six years, with an equal sex distribution. Their median age was 44 years; 45% needed organ support on admission and 8% died in the first 30 days.

Common surgery occurs commonly

Emergency surgery comes in just seven main flavours, according to data from the 2008-11 national inpatient sample from US hospitals (*JAMA Surg* doi:10.1001/ jamasurg.2016.0480), so it makes sense to prioritise these for quality measures. They comprise partial colectomy, small bowel resection, cholecystectomy, operative management of peptic ulcer disease, lysis of peritoneal adhesions, laparotomy, and (in America) appendectomy.

Statin adherence after MI

"Well, I hope it won't take a heart attack to make you see sense" is the sort of thing old fashioned doctors used to say to patients who wouldn't do as they were told. A study of people after myocardial infarction (MI) finds that those who were not taking a statin



beforehand are indeed more likely to take one afterwards (*Circ Cardiovasc Qual Outcomes* doi:10.1161/CIRCOUTCOMES.115.002418). But the fascinating converse is that those who were already taking a statin at the time of their MI are more likely to give up afterwards.

Students for best evidence

The best way to learn is to teach, and medical students make excellent teachers for the ignorant older people who are put in charge of them. A new blog on Students 4 Best Evidence (http://bit.ly/1Y2tlbK) called "The three defects of the median" should be read by all students and medical school lecturers, plus everyone whose statistical understanding falls a standard deviation below the mean.

GPs and consultants in the Highlands

Many a battle has been fought in the wide rugged spaces of the Scottish Highlands, and certain kinds of clan warfare seem to simmer along there to this day. A qualitative study of the attitudes of primary and secondary care doctors in NHS Highland towards each other hints at mistrust and dissatisfaction in several areas (*BMC Fam Pract* doi:10.1186/ s12875-016-0442-y). "Inappropriate dumping" is a recurring theme among both the McGeepees and the Consultants of That Ilk. Down at Tannochbrae, it is time that Janet brought them all a nice cup of tea. Cite this as: *BM*/ 2016;353:i3101

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