GP EMERGENCY MANAGEMENT

Palpitations in a young man: how to manage?

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GP Emergency Management articles use real cases to illustrate the emergency management of patients presenting in general practice with cardiac problems.

A man who appears to be around 30 years of age bangs on the door of your metropolitan general practice insisting that the receptionist, who is closing up for the evening, re-opens the practice urgently. He looks flushed and is sweating, has a marked tremor and is very agitated. He smells of alcohol, and says he has chest pains and palpitations. Waving caution, your receptionist lets him in and calls you urgently.

What are you thinking when you first see this patient?

Answer: Apart from 'Oh Nooo!' you should be thinking of asking your receptionist to ring triple zero (000) because it is likely this patient will need an ambulance (or if this is an excuse for him to enter the practice for other reasons, you will need the police).

The man is very agitated, tremulous and seems intoxicated but is lucid enough to tell you he has severe chest pain and his heart is racing. He has been at a nearby nightclub. He lies down on the floor of your waiting room and rolls back and forth.

What do you do next?

Answer: Ask your receptionist to ring triple zero for an ambulance. Introduce yourself to the patient as a doctor, try to reassure him and tell him you have rung for an ambulance. Put a pillow under his head and take his pulse, temperature and blood pressure.

The patient's pulse is racing at 140 beats per minute (bpm), his temperature is 37.7°C and his blood pressure is 205/115 mmHg. He is flushed and sweating profusely. Rather than be reassured, he becomes even more agitated at the thought of hospital. He says he refuses to go if the ambulance comes.

Why do you think this is?

Answer: He has probably taken illicit drugs such as speed (amphetamine or methamphetamine) or cocaine and doesn't want to tell you. This is in keeping with the time of presentation, his age and the physical signs.

What do you do now?

Answer: Ask the patient what happened at the nightclub, whether he has taken any recreational drugs and, if he has, which ones and how much. Ask him how much alcohol he has had and whether he is taking any medications or has any allergies or medical problems.

Bring the emergency trolley and oxygen to the patient, and ask your receptionist to take his personal details.

The patient tells you he has had about three rum and cokes and an energy drink in the past hour. He says he bought some speed from someone in the bathroom and snorted it there. Initially, he had felt all right but then, when he was on the dance floor, his pulse suddenly began to race and he developed chest pain. He didn't tell any of the work colleagues he was with but came straight to you.

He says he has no medical problems normally, takes no medications and has no allergies. He says he uses 'party drugs' on weekends. He has a stable job and is scared of losing it if anyone finds out why he has been taken to hospital.

What do you think is his provisional diagnosis?

Answer: He has had an overdose of amphetamines (or possibly cocaine, although he doesn't believe he took this at the nightclub). The energy drink and alcohol would have worsened his condition. The combination of amphetamine, energy drink and alcohol has caused palpitations, hyperthermia and hypertension, and he may be having a myocardial infarction due to coronary vasoconstriction. The energy drink also has sympathomimetic effects.

What do you do next?

Answer: Give him three puffs of a glyceryl trinitrate spray sublingually. However, before you

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do this, ask him whether he has used a medication for erectile dysfunction (such as sildenafil) in the past day because these drugs are often used now on the party scene. It is important to avoid the precipitous drop in blood pressure that would result from the combination of the two drugs.

As you fit the oxygen mask on the patient and prop him up more comfortably, explain that you are concerned he has had a reaction to the speed. Don't worry him with extra information or mention the ambulance again at this stage. Explain that you will insert an intravenous cannula and give him some diazepam to calm him and reverse the effects of the speed.

What active management is indicated for this patient?

Answer: Try to reduce the patient's chest pain and blood pressure with repeated sublingual glyceryl trinitrate sprays, oxygen and intravenous diazepam 5 mg initially, followed in 15 minutes if needed by a 2.5 mg bolus. Diazepam also reduces the likelihood of fitting and has some antisympathomimetic effects. Ideally, the patient should be given aspirin because this would be very effective if he were having a myocardial infarction. In practice, however, this could be more trouble or danger than it is worth because this patient is at high risk of fitting and also it would be physically stressful for him as he is likely to vomit if he were given aspirin. Try to take an urgent ECG if he can lie still enough.

Remove unnecessary clothing from the patient to cool him, and monitor his temperature to ensure it is not rising further. Given his mental and physical state, it is probably safer (and quicker) to leave him where he is if possible, rather than move him to another room.

Should you give medication to revert the tachycardia if you can't continuously monitor his heart rate, and should you cardiovert him should he arrest?

Answer: Medication should not be given to this patient to revert the tachycardia if his heart rate cannot be continuously monitored; β-blockers are contraindicated as they may provoke unopposed alpha effects, in particular vasoconstriction. The tachycardia should be managed in hospital if cardiac medications are required. Certainly it would be wise to have a cardioversion machine close by if the medical practice has one.

The patient's blood pressure has dropped to 160/100 mmHg after the sublingual glyceryl trinitrate and his chest pain has eased a little but is still there. His pulse is 100 bpm and regular. You can see the paramedics arriving and the patient still says he refuses to go with them.

What do you say to the patient?

Answer: Explain to the patient that you are concerned he is having a heart attack from the speed and that if he gets prompt treatment at hospital he has a much better chance of a full recovery. Explain that his condition can only be managed properly in hospital.

Tell the patient that for reasons of confidentiality it is illegal for his work colleagues to be told of the circumstances of the admission unless he agrees to them knowing or tells them himself. Reassure him that it is more important for him to go to hospital and have urgent treatment there than it is for him to worry about anything else right now.

Should you tell the paramedics about this patient's drug use being the likely cause of his condition?

Answer: It is crucial to this patient's emergency management, and possibly also his life, that those directly involved in his medical care know about his drug use and his recent alcohol intake. However, to decrease complaints about confidentiality, you should tell the patient this and then ask him privately if he gives you permission to explain to the paramedics what has happened.

Outcome

This patient decided to go to hospital with the paramedics and gave you permission to tell them about the evening's indulgences (saving you a rather difficult situation involving an emergency call to your medical defence organisation later). The hospital later confirmed that the patient had had a small myocardial infarction. His angiogram was otherwise normal and his echocardiogram at discharge showed a normal ejection fraction. You never saw the patient again. **CT**

Key points

- **Amphetamines are indirect sympathomimetics and increase neurotransmitter release into neural synapses via several effects.**
- **Methamphetamine produces less peripheral stimulation than does amphetamine.**
- **General acute effects of amphetamines include euphoria, hallucination, anorexia, formication, agitation, vomiting, diarrhoea, diaphoresis, mydriasis, hyperthermia, seizures, movement disorders, psychosis, stroke and death.**
- **Acute cardiac effects of amphetamines include tachycardia, systolic and diastolic hypertension, arrhythmias, coronary and peripheral vasospasm.**
- **Long-term effects of amphetamines include cardiomyopathy, psychosis, violent behaviour and pulmonary hypertension.**
- **Oral amphetamines take a couple of hours to show maximum plasma levels.**
- **Inhaled or intravenous amphetamines take several minutes to show maximum levels.**
- **Intranasal or intramuscular amphetamine takes about 30 minutes to show peak levels.**
- **The described patient presentation is becoming increasingly common, and there is a broad differential diagnosis in the absence of a reliable history.**