

ENDGAMES

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STATISTICAL QUESTION

Case-control studies: advantages and disadvantages

Researchers investigated the risk factors associated with the development of pulmonary tuberculosis in Russia. A case-control study was performed in the city of Samara, 700 miles south east of Moscow. Cases were 334 consecutive adults diagnosed as having culture confirmed pulmonary tuberculosis at any of the city's specialist tuberculosis clinics between 1 January 2003 and 31 December 2003. For each case, a control matched for year of birth and sex, and with no history of tuberculosis, was sampled randomly from a registry of the general population of Samara city. A questionnaire was used to collect information retrospectively about potential risk factors before and during the development of pulmonary tuberculosis. Controls were asked about exposure to risk factors before the index date for their matched case—that is, the date when tuberculosis was diagnosed.

The researchers reported that the most important risk factors associated with the development of pulmonary tuberculosis were raw milk and unemployment.

Which of the following statements, if any, are true?

- a) The sampling of the controls was prone to selection bias
- b) The information collected by the questionnaire was prone to recall bias
- c) It was possible to estimate the population at risk of pulmonary tuberculosis
- d) It can be inferred that raw milk and unemployment cause pulmonary tuberculosis

Submitted by Philip Sedgwick
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PICTURE QUIZ

A patient with chest pain and electrocardiographic changes



A 33 year old white man was admitted to the local coronary care unit with chest pain. Two hours earlier he had developed epigastric pain, which evolved into central chest pain. There had been one episode of vomiting with dizziness, dyspnoea, sweating, and distal paraesthesiae. The pain had resolved by the time he was admitted to the unit.

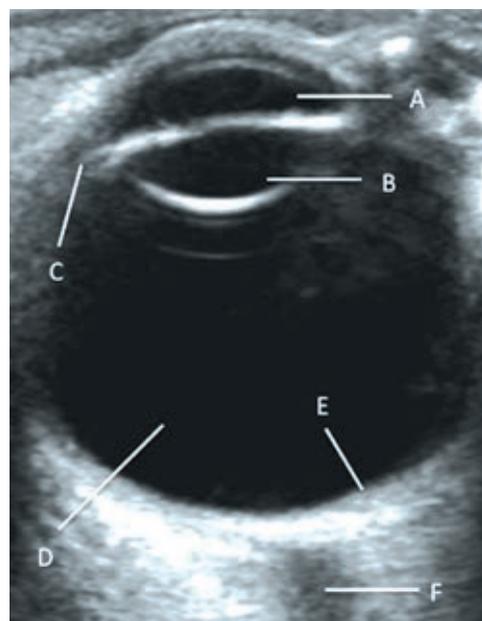
Physical examination was normal; the figure shows the 12 lead electrocardiograph. Transthoracic echocardiography showed normal left ventricular systolic function, with no regional wall motion abnormalities, and normal valve function.

Later that day he became nauseated, diaphoretic, and visibly pale. He also had blurred vision, muffled hearing, and tingling in both hands. Chest pain was not present. His systolic blood pressure had dropped to 89 mm Hg and bedside cardiac monitoring showed a pause of three to four seconds with no P wave activity, with a return of spontaneous QRS complexes. Subsequent physical examination was normal.

He later mentioned that his daughter currently had gastroenteritis and that he had been experiencing flu-like symptoms. He had a history of syncope with phlebotomy, but no other vasovagal-type events. His sister had been diagnosed with epilepsy with multiple seizures that were resistant to drugs.

- 1 What condition do the history and admission electrocardiography suggest, and what is the immediate management?
- 2 What are the next most appropriate investigations?
- 3 How are patients with this condition risk stratified?
- 4 What long term advice should patients be given?

Submitted by Jason Kwasi Sarfo-Annin and Peter James Stafford
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ANATOMY QUIZ

Transverse ultrasound image through the orbit

Identify the structures labelled A, B, C, D, E, and F in this transverse ultrasound image through the orbit of the eye.

Submitted by Sundip D Udani and Roger W Bury
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