Epidemiologie

Kauzalita cvičení

Question 1: *Consider following situations. Do you agree with the conclusions? Suggest reasons for the associations identified.*

a. Garlic pills and giving up smoking
Four subjects who smoked were randomised into receiving garlic pills, a natural treatment, or a placebo to help them stop smoking. The two who received garlic pills stopped, the two who received placebo did not (P=0.33).
Conclusion: Garlic pills treatment facilitates giving up smoking.

b. Low infant mortality in the offspring of families where the father wears a silk tie
If anybody did a study to measure the overall infant mortality in families where the father wears expensive clothes, including silk ties, a strong association would be found between wearing a silk tie and low mortality.
Conclusion: Distribution of silk ties among the male population would reduce infant mortality.

c. Recent use of antacids and stomach cancer
A case-control study of people diagnosed with stomach cancer found cases had a much higher usage of antacids in the four months prior to diagnosis than matched controls.
Conclusion: Usage of antacids is a cause of stomach cancer

Question 2:

Read the abstract below, summarising the findings of a study of vegetarianism and risk of common diseases.

Key et al. Mortality in vegetarians and nonvegetarians: detailed findings from a collaborative analysis of 5 prospective studies. Am J Clin Nutr 1999;70 (suppl):516S–24S.

ABSTRACT
We combined data from 5 prospective studies to compare the death rates from common diseases of vegetarians with those of nonvegetarians with similar lifestyles. Data for 76,172 men and women were available. Vegetarians were those who did not eat any meat or fish (n = 27,808). Death rate ratios at ages 16–89 y were calculated by Poisson regression and all results were adjusted for age, sex, and smoking status. A statistical model was used to calculate pooled estimates of effect for all studies combined. There were 8,330 deaths after a mean of 10.6 y of follow-up. Mortality from ischemic heart disease was 24% lower in vegetarians than in nonvegetarians (death rate ratio: 0.76; 95% CI: 0.62, 0.94; P < 0.01). The lower mortality from ischemic heart disease among vegetarians was greater at younger ages and was restricted to those who had followed their current diet for > 5 y. Further categorization of diets showed that, in comparison with regular meat eaters, mortality from ischemic heart disease was 20% lower in occasional meat eaters, 34% lower in people who ate fish but not meat, 34% lower in lactoovovegetarians, and 26% lower in vegans. There were no significant differences between vegetarians and nonvegetarians in mortality from cerebrovascular disease, stomach cancer, colorectal cancer, lung cancer, breast cancer, prostate cancer, or all other causes combined.

a.   What are the main findings with respect to ischemic (coronary) heart disease?

b.   List the points reported in the Abstract that support the main finding at (a) and explain the nature of the support provided. Consider alternative explanations for the findings.

c.   Which of the Bradford Hill criteria are important with respect to the evidence in the abstract?

d.   Can you suggest a potential explanation why vegetarianism is not protective for stroke?

e. What further evidence, if any, would you like to see about the health effects of vegetarianism on IHD risk?

f. If you consider the model of multiple – component causes, how would you consider vegetarianism?

       a. Is it a necessary cause of ischemic heart disease?

       b. Is it a sufficient cause?

Sufficient Cause I	Sufficient Cause II	Sufficient Cause III
E D A C B	H G A F B	J I A F C