Case study

Health & Medicine

The given case is an outbreak, because it reports the occurrence of more cases of a disease as expected in a localized area (Centers for Disease Control and Prevention, 2012). To manage this, the Centers for Disease Control and Prevention (2012) have recommended steps for outbreak investigation as follows: preparation, ensuring that the occurrence is an outbreak, verifying the diagnosis, setting the definition of a working case, finding cases systematically, recording data, perform descriptive epidemiology, developing hypotheses, evaluating hypotheses epidemiologically, modifying hypotheses, if needed, comparing and reconciling with laboratory and/or environmental studies, implementing control and prevention measures, monitoring, and publishing or presenting findings

In cases of gastrointestinal illness, such as the one given, there are a lot of differential diagnoses. Esophageal symptoms, although commonly due to gastroesophageal reflux disease and large idiopathic ulcers, can also be caused by Candida, Cytomegalovirus or Herpes simplex infection. Diarrhea, on the other hand, is usually by idiopathic/HIV enteropathy, or infection by Cytomegalovirus, Salmonella, Shigella, Campylobacter, Clostridium difficile, and Giardia lamblia. Meanwhile, hepatic disorders are caused by drug toxicity, hepatitis A, B or C infection, syphilis, Mycobacterium avium, Cryptococcus neoformans, Cytomegalovirus, Bartonella henselae, and Mycobacterium tuberculosis. Biliary disorders can result from infection by Cryptosporidia, Mycobacterium avum, Microsporidia, and Cytomegalovirus, while pancreatitis can be due to drug toxicities or opportunistic infections (Marriot & Post, 2009).

If an infection has occurred, the likely source of infection must be identified.

modes of transmission: the possible ways, such as direct contact, inhalation, vehicle-borne, fecal-oral, and vector-borne, by which the pathogen is spread to one susceptible person to another. A vehicle is a mode of transmission using a non-living thing, in this case either water or food, which carried the bacteria, and led to its inoculation of susceptible individuals, while a vector is an organism, usually an insect such as mosquito, that carries the pathogen that causes the disease. Contact with a vector, like getting a mosquito bite, transmits the microorganism to an individual. If he or she is susceptible, development of disease ensues (Centers for Disease Control and Prevention, 2012).

To identify the most likely mode of transmission and the most plausible cause of the outbreak, the World Health Organization (2012) recommends that the interviews include 1) demographical data, including occupation. This is necessary in characterizing the population at risk; 2) clinical details, particularly date of onset, duration and severity of symptoms. This allows the investigator to describe the spectrum of illness; 3) possible offending agents to which the patient is exposed to within a particular timeframe, such as food taken in a day or immediately before the onset of symptoms. This narrows down the mode of transmission in that particular setting; 4) consults to healthcare providers or hospitals, if any; and 5) laboratory test results, if any

After data gathering, line listing should be made. Line listing is a table summarizing the information obtained from the interviews. Each column represents a variable of interest, such as occupation and symptoms, while a row represents a case. This table provides an insight as to the distribution of clinical symptoms or other factors (World Health Organization, 2008).

Using the data summarized in the line listing, epidemic curve can be made. Epidemic curve is a histogram, with the number of cases on y-axis, and the date of onset of illness at the x-axis. It is used to confirm the presence of an epidemic, to determine the possible outcomes of the outbreak, to determine the mode of transmission and the possible period of exposure, and to identify outliers (Centers for Disease Control and Prevention, 2012).

References

Centers for Disease Control and Prevention. (2012, May 18). Lesson 6: Investigating an Outbreak. Retrieved from: http://www. cdc. gov/osels/scientific_edu/ss1978/Lesson6/Section2. html

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