Hepatitis A outbreak epidemiologically linked to a food handler in Melbourne, Victoria

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Abstract

Hepatitis A is caused by the hepatitis A virus (HAV). Transmission occurs by the faecal-oral route, either by direct contact with an HAV-infected person or by ingestion of HAV-contaminated food or water. Hepatitis A outbreaks are uncommon in Australia. In 2008, Victoria experienced an outbreak of hepatitis A due to an infected food handler. *Commun Dis Intell* 2009;33:47–49.

Keywords: disease outbreak, foodborne illness, hepatitis A

Introduction

Hepatitis A is caused by the hepatitis A virus (HAV), of which humans, chimpanzees and other primates are the only reservoir. Transmission occurs by the faecal-oral route, through the ingestion of contaminated food or water,[1] or through direct hand-to-mouth contact with the faeces of an infectious case. After ingesting the virus, it can take between 15 and 50 days to become symptomatic. Symptoms may include jaundice and/or dark urine, fever, headache or vomiting. A person with hepatitis A is infectious during the 2 weeks prior to and 1 week after the onset of symptoms.

HAV contamination of a food product can occur at any point during cultivation, harvesting, processing, distribution, or preparation.[2] The source of most reported foodborne hepatitis A outbreaks has been HAV-infected food handlers present at the point of sale or who have prepared food for social events.[2]

In Victoria, medical practitioners and laboratories are required to notify the Department of Human Services of cases of hepatitis A under *Health (Infectious Diseases) Regulations 2001*.[3] Public health action is centred around the identification of a source, control of the environment and to minimise the risk of secondary cases through the provision of immunoglobulin and/or vaccine. Approximately 60 cases of hepatitis A are notified each year in Victoria, most of which are acquired overseas. Few outbreaks of hepatitis A occur in Victoria: only 8 hepatitis A outbreaks have been reported since 2002, most of these occurring among children in child care centres or primary schools. To our knowledge, a foodborne outbreak of hepatitis A has not previously been identified in Victoria, although in 1997 eighty Victorian cases linked to the consumption of contaminated oysters from Wallis Lakes in New South Wales were identified. Six sporadic cases of hepatitis A among food handlers have been notified since 2003.

Follow up of apparently sporadic cases of hepatitis A can lead to the identification of outbreaks. This report describes an outbreak of hepatitis A epidemiologically linked to a food handler in a Melbourne café, Victoria, Australia.

Background

On 24 April 2008, a medical practitioner from a Melbourne hospital notified the Victorian Department of Human Services of a case of hepatitis A, whose onset of jaundice was 24 April 2008. A routine interview with the case and the case's wife ascertained that he was also a co-owner of a café situated within the central business district of Melbourne, and occasionally worked as a food handler at the premises. The case also worked as a cleaner for serviced apartments. A source of the infection could not be determined, although occupational exposure to faecal matter was concluded as the likely source. All household contacts of the case were given normal human immunoglobulin within 2 weeks of their last contact with the case in accordance with *The Australian Immunisation Handbook*.[4] The department was advised by the case's wife (a co-owner and manager of the café) that the case had not worked at the café since 2 April 2008.

Three subsequent hepatitis A notifications were received by the department between 20 May 2008 and 22 May 2008. Sources of illness for 2 cases were not ascertained, and travel to a country where hepatitis A is endemic was believed to be the cause of illness for the third case.

On 26 and 28 May 2008, 2 additional hepatitis A notifications were received by the department. At interview, no risk factors for hepatitis A were identified, however, both cases nominated eating regularly at the café co-owned by the case notified in April (index case). On 28 May 2008, it was hypothesised that foodborne transmission of HAV may have occurred at the implicated food premises.

Methods

Epidemiological investigation

On 28 May 2008, a case series investigation was commenced, incorporating prospective and retrospective follow up of hepatitis A cases notified between 24 April and 19 June 2008, and in whom no other hepatitis A risk factors were identified. This time series took into account the minimum and maximum incubation periods of hepatitis A following potential exposure of HAV from the index case. Structured interviews were carried out with all identified cases to ascertain onset, symptoms, and possible source of illness. All cases were questioned about their consumption of ready-to-eat foods such as sandwiches and salads from 'inner city cafés'.

On 30 May 2008, the department issued a media release to the general public, advising people who had eaten food from the café prior to 25 April 2008 to be aware of symptoms of hepatitis A, and to seek urgent medical attention if symptoms were present. Cases notified after the media release were questioned with the standard hepatitis A questionnaire, and were additionally asked if they had eaten food at the named café.

Onset dates were plotted on a time-series figure, and incubation and infectious periods were calculated to epidemiologically link the cases that nominated eating at the implicated premises prior to 25 April 2008.

Environmental investigation

An inspection of the premises was carried out by an environmental health officer at the local council in which the premises was located.

Results

Epidemiological investigation

A total of 15 cases were identified in the case series, five of which were notified subsequent to the media release being issued. Ten cases were deemed to have acquired their illness through the consumption of contaminated food from the implicated café. One case was the partner of a case who had eaten at the café. It was hypothesised that he acquired his infection through person-to-person transmission. Four additional cases were identified during the case series investigation but had not eaten at the café, and therefore were not epidemiologically linked to the outbreak and were excluded from further analysis.

Of the 10 cases identified in the outbreak, the median age was 38 years (range 23–65 years). The male to female ratio was 2.3:1. The most common symptoms experienced by cases were fever (100%), jaundice (80%), and nausea (80%). Other symptoms reported were vomiting, headache, diarrhoea, dark urine and abdominal pain. All cases reported eating uncooked ready-to-eat foods such as salads, and sandwiches containing salad ingredients. At least 7 cases ate at the premises regularly (multiple times during their infectious period).

Standard public health responses were offered to each case, which in Victoria includes:

- education on the HAV and its transmission;
- work exclusions as necessary during the case's infectious period; and
- arranging post-exposure prophylaxis to close contacts of an infectious case.

Environmental investigation

Inspections of the premises were conducted on 28 April and 28 May 2008. A precautionary clean up of the premises was conducted on the weekend of 25–26 April 2008, and this was verified by the council officer during the site visit. During the second site visit, the local council officer reviewed the Food Safety Program, undertook a Food Safety Compliance Check, and reviewed hygiene, cleaning and food handling procedures. At the time of the inspections, food handling procedures were found to be good, with adequate hand washing facilities available. The staff illness register was also observed, which indicated that the index case had worked at the food premises from 20 April to 19 May 2008.

No food or environmental samples were collected as no representative samples were available due to the long incubation period of hepatitis A.

Additional public health responses

Having ascertained that the index case had worked at the premises during his infectious period, the department advised the other food handlers at the café to be aware of the symptoms of hepatitis A; and to discontinue work and seek urgent medical attention if symptoms were recognised. On 2 June 2008, the food handlers were requested to have a blood test for hepatitis A. Results showed that all 3 food handlers had immunity to hepatitis A, indicating that they were neither incubating hepatitis A nor at risk of contracting hepatitis A in the coming weeks and so posed no risk to ongoing HAV transmission from this café.

Discussion

This report describes an outbreak of hepatitis A involving 10 cases epidemiologically linked to eating ready-to-eat foods at a café in Melbourne, Victoria.

It was suspected that the vehicle for this outbreak was faecally contaminated uncooked ready-to-eat foods such as salads and sandwiches for the following reasons:

- all cases consumed these types of foods;
- multiple handling of these foods during preparation was likely;
- hepatitis A virus is killed during the cooking process.

Additional case finding facilitated by the issuing of a media release was an appropriate public health response to this outbreak. This lead to the identification of an additional 5 hepatitis A cases associated with the outbreak. Close contacts of the additional cases were subsequently offered immunoglobulin to prevent tertiary transmission of HAV to others. Only 1 tertiary case was identified in the outbreak.

The environmental inspections identified no major concerns relating to the manner in which food was prepared and served at the premises. The inspection did, however, reveal that the index case had worked during his infectious period, which was contrary to the advice that the department had received from the case as well as the co-owner of the food premises. This was only ascertained during the second inspection of the premises, approximately 1 month after the index case was initially questioned during routine follow up. Whilst this delay did not alter the outcome of the investigation, the information may have expedited the media release, and therefore may have lead to more timely notification of outbreak cases. The department's protocol for investigating cases of hepatitis A specifies that where the case's occupation is a food handler and the case worked during their infectious period, co-workers should be provided with information about hepatitis A and recommended to have immunoglobulin delivered within 14 days of exposure to the infectious case. Fortuitously, the food handling co-workers in this outbreak were already immune to hepatitis A, and therefore posed no risk to the public in handling food. If however, the food handling co-workers were not immune, and had contracted hepatitis A from the index case, it is plausible that they may have been infectious whilst working as a food handler.

Two lessons learnt arose from this investigation, with the following recommendations currently under consideration:

1. that all staff illness registers, if available, are inspected during routine follow-up of hepatitis A cases among food handlers; and
2. that routine hepatitis A questionnaires are updated to capture foods that are not cooked such as salads or sandwiches.

The outbreak described in this report was recognised through a series of apparently sporadic case investigations, and is a timely reminder of the importance of routine investigation of this disease of public health importance.

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