Rapid communications

MENINGOCOCCAL DISEASE IN A BACKPACKERS' HOSTEL IN SCOTLAND: A RISK ASSESSMENT FOR PROPHYLAXIS

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This paper outlines the risk assessment and communication strategy carried out by the Lothian Health Protection Team after notification of a probable case of meningococcal disease (later confirmed as *Neisseria meningitidis*) in a resident of a city centre backpackers' hostel. Six close contacts were identified from the hostel and given rifampicin prophylaxis. Two days after commencing rifampicin one of these contacts was admitted to hospital with a purpuric/petechial rash and thrombocytopenia. The final diagnosis for this contact was thrombocytopenia, either idiopathic or secondary to rifampicin. This example and the potential side effects of administering rifampicin prophylaxis highlight the importance of a thorough risk assessment of contacts of a case to avoid prescribing prophylaxis to anyone other than those at highest risk of becoming a subsequent case.

Introduction

The Lothian Health Protection Team (HPT) was notified of a probable case of meningococcal disease in a foreign national who was resident in a large city centre backpackers' hostel. The HPT undertook an investigation to identify close contacts requiring prophylaxis.

In the United Kingdom prophylaxis (usually rifampicin) is routinely offered to close contacts of confirmed or probable cases of meningococcal disease to eradicate carriage of the organism in those most at risk [1].

The Health Protection Agency [1] defines a close contact as:

Someone who has had an overnight stay in the household, or with whom the patient has stayed overnight, during the seven days before onset of illness in the index case.

Someone who is an intimate kissing contact.

In larger institutions defining close "household" contacts is more challenging [1,2,3]. In this case the Consultant in Public Health Medicine is responsible for deciding who constitutes the "household".

The administration of rifampicin is not without risk. Adverse effects have been reported to occur in about 4% of patients receiving "usual doses" of rifampicin (for example 10mg/kg/day) [4]. Mild adverse effects include nausea, diarrhoea, abdominal pain, headache, dizziness and skin rash [5]. More severe adverse effects include thrombocytopenia, with or without purpura, and hepatic reactions [6].

If prophylaxis is not prescribed for contacts the absolute risk to a person in the same household of developing meningococcal disease one to 30 days after an index case is about one in 300 [1].

It has been estimated that 200 household contacts need to be treated with prophylaxis in order to prevent a subsequent case of meningococcal disease in the first month [7]

Methods

For this incident a household contact was defined as:

1. Anyone who shared a room with the case in the seven days prior to symptom onset.
2. Anyone who had spent prolonged periods of time socialising with the case in the seven days prior to symptom onset.

To identify close contacts who required prophylaxis the layout of the hostel was inspected. The names of close contacts were identified through hostel records and through discussion with other residents.

Blood samples were sent from the case for confirmation and typing of *Neisseria meningitidis*.

Results

Contacts

The hostel comprised two separate buildings, a short stay facility with 170 beds and a long-stay facility with 130 beds. The index case was resident in a three bedded room of the long stay facility and had been living there for several months.

On the day of notification (day 1) six close contacts were identified who fitted the definition. All were given rifampicin prophylaxis. These contacts included: two room-mates, three friends and the case's partner.

Administration of rifampicin

Day 1: Five of the close contacts received rifampicin from the local hospital. Three of these close contacts were foreign nationals, only one of whom spoke English. Communication regarding prophylaxis and its contra-indications was done through translation by this individual. No contraindications were identified.

Day 2: One contact, travelling in Ireland, had prophylaxis arranged by public health colleagues in Ireland.

Day 3: Two days after commencing rifampicin prophylaxis one of the contacts from the hostel was admitted to hospital with a purpuric/petechial rash. This person had taken three doses of rifampicin 600mg. Differential diagnoses included idiopathic thrombocytopenic purpura, thrombocytopenia secondary to rifampicin and possible meningococcal septicaemia.

Communication to hostel residents

Day 4: Following the admission to hospital of the contact (where meningococcal disease was a possibility), information letters, written in English, were placed on each resident's bed in the hostel. These letters informed residents that there had been a confirmed case of meningococcal disease in the hostel and included information on the signs and symptoms of the disease. The HPT also visited the hostel for question and answer sessions.

Microbiology

Day 4: The samples from the index case were confirmed as *N. meningitidis* serogroup W135. The HPT advised that the previously identified close contacts of this case should be vaccinated against W135.

Day 9: The contact was discharged from hospital with a final diagnosis of thrombocytopenia which was either idiopathic or secondary to rifampicin. A blood sample sent for PCR was negative for *N. meningitidis*.

No further cases of meningococcal disease were notified from the hostel.

Discussion

Risk assessment for the administration of prophylaxis

Deciding how extensively to give prophylaxis in an institution such as a hostel is not straightforward. In this incident the HPT identified contacts requiring prophylaxis amongst those most closely linked with the case. This totalled six close contacts from the 300 bed hostel. This health protection response was similar to the response in a hall of residence in Southampton in 1997 when the first case in an outbreak was treated as a "single case" and mass prophylaxis was only advised when further cases were notified [8].

A contrasting approach was taken in a 282 bed hostel in Vancouver in 2001 when, after notification of a single case, the entire hostel was considered a "household" and ciprofloxacin prophylaxis was recommended for all staff and residents who had stayed at the hostel for up to a week before the case was admitted. It was estimated that this could have been up to 750 people [9].

The fact we have reported that a close contact who was given rifampicin was discharged from hospital with a final diagnosis of thrombocytopenia, either co-incidental or secondary to rifampicin stresses that all close contacts should be informed of the potential dangerous side effects of rifampicin prophylaxis and that a thorough risk assessment should be undertaken before administering prophylaxis to contacts.

Communications

Contact tracing proved challenging during this incident due to the limited information held about possible contacts in hostel records and by other residents.

Communication to the wider community at the hostel was also difficult due to the multiple nationalities of its residents. The letter

given to individuals in the hostel was in English. Consideration was given to preparing letters in a variety of languages however this would have caused a lengthy delay in communicating the risk. Being aware of the signs and symptoms of meningococcal disease is essential to ensure that cases are given medical treatment as soon as possible. Prior preparation of information about meningococcal disease in different languages would be helpful especially in busy European tourist cities with visitors from across the world.

Acknowledgements

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