Shigella outbreak among students from a student society in the Netherlands

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INTRODUCTION

On the 30th of March 2017 a cluster of shigella flexneri infections was identified among students from a student society, starting with three microbiologically confirmed cases. Initial investigation suggested that more students were affected, and an association with food consumed at the society was suspected. An outbreak investigation was initiated to determine the extent of the outbreak, and to look for possible sources.

METHODS

An electronic questionnaire-based cohort study was conducted among the 1971 members (63% male, 37% female) of the student society. Cases were defined as members of the student society who visited the student society between the 10th and 17th of March 2017, and suffered gastrointestinal complaints starting within a week after the visit. Controls visited the society in the same period, though did not develop gastrointestinal complaints. Statistical analyses was performed with SAS.

RESULTS

The response rate was 26%. 32% (n=162) of the respondents had suffered gastrointestinal complaints between the 10th of March and the 26th of April, showing a peak around the 17th and 18th of March 2017, and suffered gastrointestinal complaints starting within a week after the visit. Controls visited the society in the same period, though did not develop gastrointestinal complaints. Statistical analyses was performed with SAS.

Norovirus can be ruled out as a cause. 14 % of the respondents reported vomiting. In case of norovirus this is known to be 70%. The Dutch food and consumer product safety authority (NVWA) has taken food samples the 10th of April. No pathogens were found. Limitations were: delay in conducting the questionnaire, which could cause recall bias. Anonymity was ensured, though double entries could not entirely be ruled out. Questions were not mandatory; not structured by risks per day; and the time frame (10th – 17th of March) was too limited in hindsight.

CONCLUSIONS

This has been an unusually large outbreak. The outcome of the questionnaire indicates attending the society, and consumption of food on 15th of March were risk factors. However, several cases had already occurred beforehand. The initial source of introduction could therefore not be traced. Most likely, multiple transmission routes have been involved, through use of toilets, food handling, and bar tendering. Exposure may have been increased through food handling, explaining the first peak.

REFERENCES


Table 1. Univariate analysis of risk factors for developing gastrointestinal complaints

<table>
<thead>
<tr>
<th>Gastrointestinal complaints (%)</th>
<th>Visiting the society</th>
<th>Consumption of food/drinks</th>
<th>Food consumption 10 March</th>
<th>Food consumption 14 March</th>
<th>Food consumption 15 March</th>
<th>Bar tendering</th>
<th>Food handling lunch</th>
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</thead>
<tbody>
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<td>Visiting the society</td>
<td>Yes</td>
<td>Consumption of food/drinks</td>
<td>Food consumption 10 March</td>
<td>Food consumption 14 March</td>
<td>Food consumption 15 March</td>
<td>Bar tendering</td>
<td>Food handling lunch</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
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<td>23,3*</td>
<td>44,6*</td>
<td>38,7*</td>
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<td>28,4*</td>
<td>69,8*</td>
<td>22,7*</td>
<td>22,7*</td>
</tr>
</tbody>
</table>

*Only significant results are shown

Epidemic curve

REFERENCE