Diarrhoea in travellers

Jessica Barrett

Mike Brown

Abstract

Travellers' diarrhoea is a common illness, particularly among travellers visiting low-income countries, and is generally self-limiting and uncomplicated. However, it has a disproportionate impact on well-being, occurring as it does during holidays or business trips, and can result in severe dehydration. Most causes of acute travellers' diarrhoea are bacterial or viral, and the pathogen is often not identified, either because the illness resolves too quickly, or because medical attention is sought only after a delay. Parasites are a more important cause of chronic diarrhoea after travel; however, the most common reason for continuing symptoms is post-infectious irritable bowel syndrome. Here we review the epidemiology and causative organisms, and provide a rationale for the investigation and treatment of both acute and chronic travel-associated diarrhoea.

Keywords Antibiotics; *Campylobacter*; diarrhoea; *Escherichia coli*; irritable bowel syndrome; MRCP; travel

Key points

- Travellers' diarrhoea is the most common illness reported after travel, and is particularly associated with travel to high-risk areas such as South and South-East Asia, and Central America

- It is usually short-lived and self-limiting; however, it is rarely associated with serious sequelae, particularly in immunosuppressed or elderly patients or infants

- A thorough history can help establish the diagnosis; include a sexual history as unprotected sex can be a risk factor for specific pathogens

- A short course of empirical antibiotics such as azithromycin or ciprofloxacin is an effective way of reducing the duration and severity of an episode of travellers' diarrhoea, but this usage for a self-limiting indication remains controversial

- Diagnostic tests should be selected based on duration of symptoms, destination of travel and exposures, but should usually include stool microscopy, culture and sensitivity and microscopy for parasites, HIV testing and basic blood tests

- Post-infectious irritable bowel syndrome is a common sequela of infectious diarrhoea. It should be considered as a possible cause of persistent diarrhoea once infectious and inflammatory causes have been excluded

Definition

Travellers' diarrhoea is generally defined as diarrhoea occurring during, or within 10 days of, travel to a resource-poor area from a resource-rich area. It can be further classified based on chronicity (acute if <2 weeks' duration of symptoms, or chronic if more) or severity (classical: >3 unformed stools per 24 hours plus associated systemic symptoms; moderate: 1 or 2 unformed stools plus systemic symptoms, or three or more stools with no other symptoms; mild: 1 or 2 unformed stools). The latter can be useful for research purposes but is less helpful clinically.

Travellers' diarrhoea is the most common infection in travellers: a recent review found that 38% of infections in Finnish travellers were gastroenteritis. The true incidence is hard to estimate as many people do not seek medical help either abroad or on their return home. One prospective study of travellers staying 7−30 days in Mexico or Guatemala found the incidence of diarrhoeal illness to be 15%,[1] and a related study of travellers to India reported an incidence of 21% for moderate to severe diarrhoea. This incidence is lower than is generally found in retrospective surveillance studies, perhaps because of a more stringent case definition.

Jessica Barrett MB BS BA MRCP DTM&H is a Specialist Registrar in Infectious Diseases at Barts Health NHS Trust, London, UK. Competing interests: none declared.

Mike Brown BA PhD FRCP DTM&H is a Consultant Physician at the Hospital for Tropical Diseases, University College London Hospital, UK. Competing interests: none declared.

Epidemiology

The incidence of travellers' diarrhoea is greatly affected by both individual and travel-related factors. The travel destination is important: South and South-East Asia, South and Central America and North and West Africa are considered high-risk regions. Russia, China, the Caribbean and South Africa are considered medium-risk. Other travel-related factors include mode of travel, with backpacking and visiting friends and family presenting a greater risk than business travel. Food choices while abroad are likely to affect risk; however, inaccurate recall of diet while travelling limits the reliability of such studies. All-inclusive buffets have been associated with higher risk of diarrhoea, and alarmingly high levels of pathogens have been isolated from jars of condiments.

Patient factors that increase risk of diarrhoea include the use of H_2-receptor antagonists and proton-pump inhibitors, and altered upper gastrointestinal anatomy, as these impair natural defence mechanisms against gut pathogens. Children <6 years of age are at greater risk and, like elderly individuals, are also more at risk of significant dehydration.

Causes

The causative agent in travellers' diarrhoea is often not identified.[2] A number of factors contribute to this: lack of sensitivity of stool culture, delay in seeking medical advice, and infrequent use of testing strategies to identify pathogenic *Escherichia coli* in routine stool cultures. Even in studies aimed at describing the

aetiology of travel-associated diarrhoea, no pathogen is identified in 40−70% of cases. Where a pathogen is identified, it is usually bacterial. Parasites cause acute travellers' diarrhoea less frequently than bacteria and viruses, but are a more important cause of persistent diarrhoea after travel.

Symptoms are not always an accurate indicator of aetiology, but it is sometimes useful to distinguish between colitic symptoms and upper gastrointestinal symptoms (Figure 1). The typical presentation, 'turista', of an abrupt onset of watery diarrhoea, preceded by abdominal cramps and nausea, is often associated with enterotoxigenic *E. coli* (ETEC). ETEC is often identified as the most common cause of travellers' diarrhoea globally, but *Campylobacter jejuni* is more often the cause in South and South-East Asia, and is increasing in incidence. Amoebiasis and giardiasis are also more commonly acquired in South-East and South Asia. Outbreaks of more unusual pathogens also occur: *Cyclospora cayetanensis* caused an outbreak of diarrhoea among travellers returning from Mexico in 2015. Up-to-date information about recent outbreaks can be found on the ProMED website (http://www.healthmap.org/promed/). It is essential to exclude malaria in any traveller with a fever and an appropriate travel history.

Course of disease

The vast majority of episodes of travellers' diarrhoea are of short duration and do not present a substantial risk to health. Only 1 in 10 individuals have symptoms severe enough to confine them to bed or require medical attention. Most episodes start in the first week of travel, with the incidence peaking on day 2 or 3 after arrival; >80% resolve within 7 days.

Some groups of travellers are at higher risk of complications: infants and older adults are more likely to become dehydrated, particularly if they are vomiting or have large-volume secretory diarrhoea. Immunosuppression increases the risk of severe infection such as bacteraemia or infection of other sites, which occasionally occurs with bacteria such as *Salmonella* spp.

Management of travellers' diarrhoea while abroad

Prophylaxis

Travellers should ideally prevent episodes of diarrhoea by observing scrupulous food and hand hygiene practices, but this is rarely possible in practice. Travellers should drink boiled or bottled water, peel fruit and vegetables, ensure food is cooked thoroughly, and avoid buffets if food has been unrefrigerated or uncovered for prolonged periods. Ice should usually be avoided, as should shellfish and salads.

Pre-travel counselling should include this type of advice, but consideration should also be given to the need for chemoprophylaxis in very vulnerable individuals. Travellers for whom this may be advisable include those with profound immunosuppression, intestinal pathology such as inflammatory bowel disease or conditions that can be severely worsened by dehydration, such as sickle cell disease. If the benefits outweigh the risks of prescribing prophylactic antibiotics for an individual, options include once-
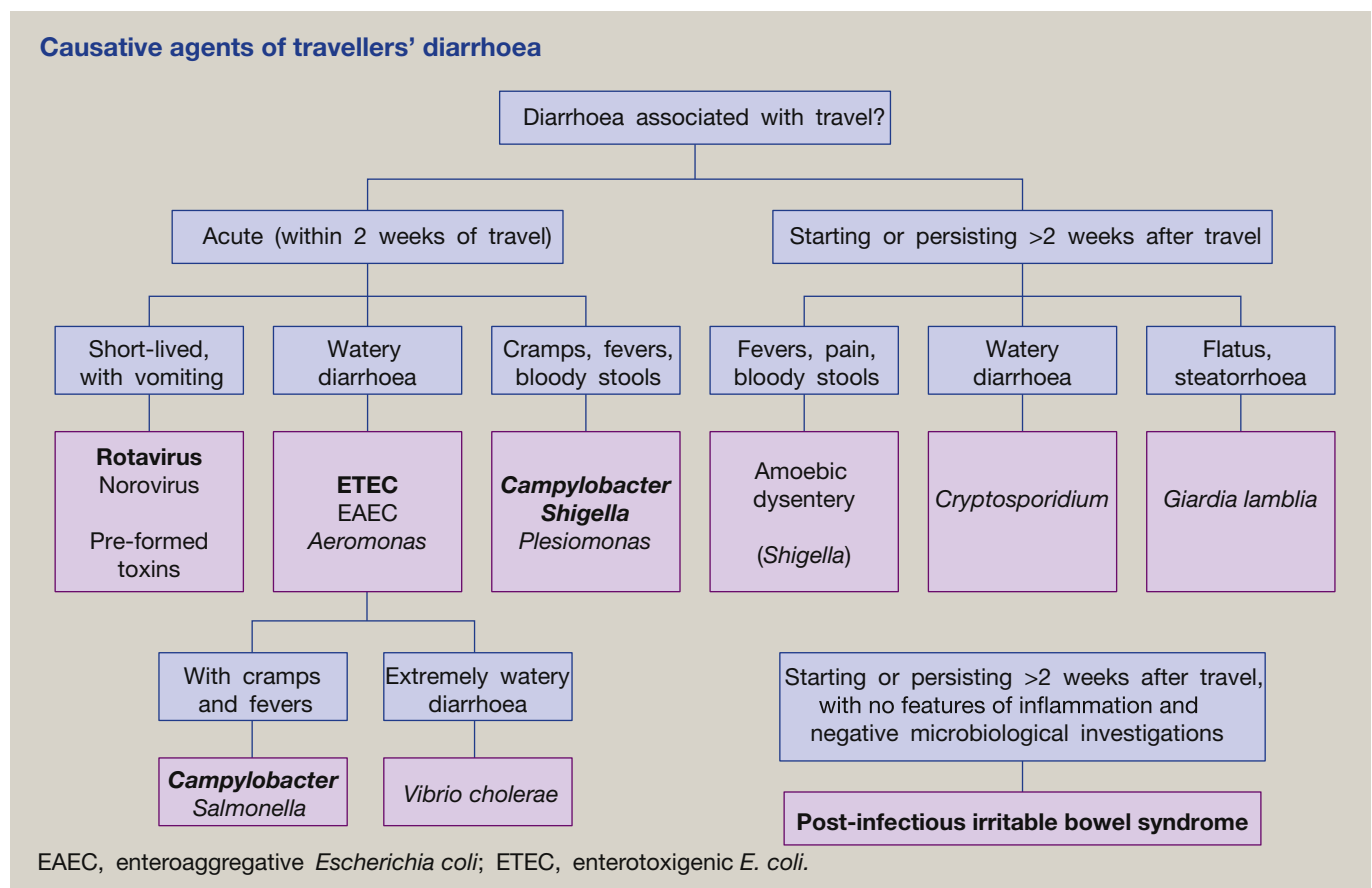

Causative agents of travellers' diarrhoea

EAEC, enteroaggregative *Escherichia coli*; ETEC, enterotoxigenic *E. coli*.

Figure 1