

Foodborne, food related illness and role of the healthcare professionals

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Foodborne infection is a major health issue and its impact on global social and economic development remains unknown (1). A paper published in the journal *Nature* estimates 30% of all infections over the last 60 years were Foodborne (2). The Centre for Disease Control in the United States estimates that 76 million people per year are affected by Foodborne illness, with 300,000 requiring hospital treatment and 5000 fatalities (3). Specific foods are associated with specific Foodborne infections and food poisoning (3). Examples include unpasteurised milk (*Campylobacter*); shellfish (*noroviruses*); unpasteurized apple cider (*Escherichia coli* O157:H7), raw and undercooked eggs (*Salmonella*); fish (ciguatera poisoning); raspberries (*Cyclospora*); strawberries (hepatitis A virus); and ready-to-eat meats (*Listeria*).

In clinical practice, healthcare professionals, including physicians, have to interpret clinical symptoms; enabling correct diagnosis and the differentiation of Foodborne illness from food allergy and intolerance, celiac disease, the irritable bowel syndrome, inflammatory bowel disease, viral infection and malignancy (4). An up to date understanding of diagnostic testing is fundamental to the identification of a food related illnesses. Obasanjo published a review in *Medscape* (5) that summarises the key aspects of the primer

published in 2001 by the Foodborne Illness Primer Work Group (FIPWG) and its subsequent updates published in *Morbidity and Mortality Weekly Reports (MMWR)* (6). The article highlights that in routine clinical practice it is important to maintain good communication between physicians, local testing laboratories and public health authorities. The review reports that most laboratories limit stool culture to screening for species such as *Salmonella*, *Shigella*, *Campylobacter jejuni* or *E. coli*. Laboratories require advanced notification if *Yersinia*, *Vibrio*, *E. Coli* 0157:H7 or other *Campylobacter* species are suspected, because additional media and incubation conditions are required. Special laboratory procedures are also required to identify infection due to parasites such as *Cryptosporidium* and *Cyclospora cayetanensis*. In practice, this means physicians need to communicate with their local laboratories to ensure that arrangements for specialist testing are in place prior to the sending of samples. Furthermore public health authorities need a close relationship with local laboratories to provide advice regarding local antibiotic sensitivities and to initiate community investigation of outbreak sources.

Electronic request, information technology, eLearning, etc., have become synonyms or replacements for new and different types of communication. Although new models of communication have added a litany of words to our vocabulary and created novel ways to highlight tasks and develop plans, the way we

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communicate has become more complicated and potentially more confusing. Maintaining good communication is a necessity within each clinical setting and across clinical specialties.

The paper by Obasanjo serves as a reminder that knowledge about rarer conditions can aid differential diagnosis. Specific considerations are required when investigating Foodborne infections in severely ill patients, immunocompromised patients, those with a significant travel history or in those who fail to respond to empirical treatment.

Identifying the underlying Foodborne infection may necessitate repeating stool cultures, reviewing histology results and serology.

Obasanjo reminds us that physicians need be aware of unusual symptoms and signs such as rashes, myalgia, arthralgia and focal neurological weakness (5). Neurological signs such as meningism or orofacial weakness may indicate life-threatening diagnoses such as Botulism, seafood contamination, mushroom poisoning or chemical poisoning (e.g. organophosphates). The review also highlights that treatment of Foodborne microbial infections with antibiotics needs to be considered carefully and should be based upon evidence of appropriateness of treatment, antimicrobial susceptibility tests as well as interpretation of signs, symptoms and results of stool microscopy/culture.

Antibiotics have no effect upon viral infections such as the common head cold and only about 5-10% of bronchitis cases are caused by a bacterial infection. Misuse and overuse of antibiotics has serious effects on public health. Antibiotic resistant bacteria are a growing threat and becoming increasingly common. Unfortunately, the low threshold of using antibiotics, in certain countries in the Middle East, might create multi-antibiotic resistant life threatening infections or "super bugs" (7). Antibiotic abuse also places the

patient at unnecessary risk of adverse effects of antibiotics. Judicial use of antibiotics is therefore recommended.

In conclusion, healthcare professionals play a key role in the identification and treatment of Foodborne illness. Awareness of algorithms for the correct diagnosis of food related enteropathies, good communication with testing laboratories and prompt case reporting to public health authorities are essential. Awareness on the limited benefits of antibiotics therapy should also be a priority to prevent the development of antibiotic resistant "superbugs."

References

1. Kuchenmüller T, Hird S, Stein C, Kramarz P, Nanda A, Havelaar A. Estimating the global burden of foodborne diseases--a collaborative effort. *Euro Surveill* 2009; 14: 18.
2. Jones KE, Patel NG, Levy MA, Storeygard A, Balk D, Gittleman JL. Global trends in emerging infectious diseases. *Nature* 2008; 451: 990-93.
3. Tan LJ. Diagnosis and management of foodborne illnesses: a primer for physicians and other healthcare professionals. *MMWR Morb Mortal Wkly Rep* 2004; 50: 1-69.
4. Rostami K, Villanacci V. Microscopic enteritis: novel prospect in coeliac disease clinical and immunohistogenesis. Evolution in diagnostic and treatment strategies. *Dig Liver Dis* 2009; 41: 245-52.
5. Obasanjo O. Foodborne illness primer for physicians and other healthcare professionals: a review. *Medscape*. Available from: <http://www.medscape.com/viewarticle/726313>. Accessed at: Oct, 2010.
6. Foodborne Illness Primer Work Group. Foodborne illness primer for physicians and other health care professionals. *Nutr Clin Care* 2004; 7:134-40.
7. Harrison JW, Svec TA. The beginning of the end of the antibiotic era? Part II. Proposed solutions to antibiotic abuse. *Quintessence Int* 1998; 29: 223-29.