THE POEM SYNDROME

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Poems may make the heart skip a beat. But the POEM (peripheral neuropathy, organomegaly, endocrinopathy, M-protein and skin changes) syndrome does more than just that – by increasing the risk of Salmonella endovascular infection when associated with vasculopathy; indicates a report (Int J Infect Dis. 2009 May;13(3):e97-9).

More often than not, characterization of strains of Salmonellae stops at identification of the isolate serotype. Phage typing is not carried out for various reasons despite being of tremendous epidemiological importance. Given this disturbing trend, a study (Epidemiol Infect. 2009 Jun; 137(6):821-7) was carried out to assess the effects of reductions in the number of isolates tested by phage-typing on the recognition of outbreaks of salmonellosis. Five outbreaks (categorized as ‘small’, ‘medium’ or ‘large’) which occurred in England in 2005 were used as examples. The outbreaks were caused by serotypes which were subdivided by phage-typing. Results indicated that reducing the number of isolates phage-typed would have an impact on the surveillance system, with one outbreak likely to have been missed altogether. Assuming no testing for phage-typing was undertaken, it is likely that two out of five outbreaks would not have been detected.

With global travel on the increase, there is a renewed focus on vaccinations against travellers’ diarrhoea. With this in perspective, a cost-effective and cost-benefit study of the oral whole-cell/recombinant B-subunit cholera vaccine (WC/rBS), Dukoral, for prevention of travellers’ diarrhoea (TD), was performed on subjects travelling to cholera risk areas (BMC Infect Dis. 2009 May 16;9:65). The effectiveness of WC/rBS vaccine in the prevention of TD was analysed in 362 travellers attending two international vaccination centres in Spain between May and September 2005. The overall vaccine efficacy against TD was 42.6%, and preventive vaccination against TD resulted in a mean saving of 79.26 Euro per traveller.

Safe Drinking Water Supplies vs. Vaccine Interventions

Safe Drinking Water Supplies or. Vaccine Interventions - which among the two is a cost effective solution against diarrhoeal disease? A cost-benefit comparison of improved water supply investment and cholera vaccination programmes (Vaccine. 2009 May 18;27(23):3109-20) examined two water supply interventions -- deep wells with public hand pumps and biosand filters - with two types of cholera immunization programmes - general community-based and targeted and school-based programs. In addition, five combinations of water and vaccine interventions were analysed: (1) borehole plus hand pump and community-based cholera vaccination, (2) borehole plus hand pump and school-based cholera vaccination, (3) biosand filter and community-based cholera vaccination, (4) biosand filter and school-based cholera vaccination, and (5) biosand filter and borehole plus hand pump. The results demonstrated that two improved water supply interventions and a targeted cholera vaccination programme are much more likely to yield attractive cost-benefit outcomes than a community-based vaccination programme.

Enteropathogenic E. coli (EPEC) is a prominent cause of diarrhoea, and is characterised in part by its carriage of a pathogenicity island: the locus for enterocyte effacement (LEE). EPEC is divided into two subtypes according to the presence of bundle-forming pili (BFP), a fimbrial adhesin that is a virulence determinant of typical EPEC (tEPEC), but is absent from atypical EPEC (aEPEC). Because aEPEC lack BFP, their virulence has been questioned. A phylogenetic analysis of 75 aEPEC strains (BMC Microbiol. 2009 Jun 3; 9:117) compared with reference strains of EPEC and STEC showed that aEPEC are highly heterogeneous. The findings indicate that clinical isolates of aEPEC are not derived from tEPEC or STEC, and suggest that functional equivalents of BFP and possibly type I fimbriae may contribute to the virulence of some aEPEC strains.

Consumption of improperly washed raw fruits, vegetables and salads are known to lead to faeco oral transmission of pathogens. In this context, experiments were performed to determine the effectiveness of freeze-drying; freeze-drying combined with heating, and steam blanching for inactivation of enteric viruses that might be present on the surface of berries and herbs (Appl Environ Microbiol. 2009 Jun;75(12):4155-61). While freeze-drying barely reduced (less than 1.3 log (10) units) the amount of
hepatitis A viral RNA detected in frozen produce, addition of a terminal dry heat treatment at 120 degrees C after freeze-drying enhanced virus inactivation by at least two log (10) units. The results also suggested that steam blanching at 95 degrees C for 2.5 min effectively inactivated infectious enteric viruses in herbs.

Stool microscopy, with all its limitations, has remained the mainstay of diagnosis of intestinal amoebiasis. Though PCR has shown greater specificity, issues of affordability, infrastructural requirement and turnaround times have discouraged widespread use of the technology. In an attempt to overcome these issues, a novel one-step, closed-tube, loop-mediated isothermal amplification (LAMP) assay for detecting Entamoeba histolytica was developed (J Clin Microbiol. 2009 Jun;47(6):1892-5). The sensitivity of the LAMP assay was one parasite per reaction, and no DNA was amplified from other diarrhoeal pathogens (including other Entamoeba species) while testing a series of 130 clinical samples.

To vaccinate or not to vaccinate – that has always been the question where rotavirus infections are concerned. In November, 2008, the Strategic Advisory Group of Experts (SAGE) on immunization, which advises the Director-General of the World Health Organisation (WHO) on the full range of immunization issues, requested a detailed report of the Rotarix trials in South Africa and Malawi. Based on their review of the evidence, SAGE recommended inclusion of rotavirus vaccination of infants in all national immunization programmes. The introduction of the vaccine is strongly recommended in countries where diarrhoeal deaths account for more than or equal to 10% of mortality among children aged less than five years (WHO Weekly epidemiological record. 5 JUNE 2009, No. 23, 2009, 84, 213–236).

Every year, millions of people are affected by a range of water-borne diseases like cholera, hepatitis A and typhoid. Unfortunately, at the March, 2009, United Nations (UN) meetings coinciding with the World Water Forum, Canada, Russia, and the United States refused to support a declaration which would recognize water as a basic human right. The special resolution proposed by Germany, Spain and endorsed by the President of the UN General Assembly, was instead rejected in favour of further examination of issues of access to safe drinking water and sanitation (PLoS Med. 2009 June; 6(6): e1000102).

Finally, a one-stop solution for rapid laboratory diagnosis of diarrhoeal diseases, a new rapid and accurate reverse dot blot (RDB) method for the detection of 12 intestinal pathogens in faecal samples, has been developed (World J Gastroenterol. 2009 May 28;15(20):2537-42). The 12 intestinal pathogens tested are Salmonella spp., Brucella spp., Escherichia coli O157:H7, Clostridium botulinum, Bacillus cereus, Clostridium perfringens, Vibrio parahaemolyticus, Shigella spp., Yersinia enterocolitica, Vibrio cholerae, Listeria monocytogenes and Staphylococcus aureus.