Detection of Newly Described Astrovirus MLB1 in Stool Samples from Children

To the Editor: We read with interest the article by Finkbeiner et al. describing an epidemiologic survey of newly described astrovirus MLB1 (AstV-MLB1) conducted in the United States in 2008 (1). This study was an extension of recently published reports of characterization of AstV-MLB1 from a fecal sample obtained in Australia in 1999 (2,3). These studies provide evidence of a divergent group of astroviruses and their etiologic association with human disease.

However, the occurrence of a MLB1-like AstV in humans has already been documented. Walter identified a novel AstV in an 8-month-old child with diarrhea in Mexico in 1991 (4). In that study, Walter screened fecal samples for AstVs by using a variety of techniques. Sequencing of selected PCR products identified a unique virus that had typical AstV morphologic appearance, but was nonreactive with human AstV-specific monoclonal or polyclonal antibodies. Phylogenetic analysis of fragments of open reading frame 1a (ORF1a) and ORF2 genome regions of this virus strain (M3363) showed that it was only distantly related to other mammalian AstVs, including human AstVs (4). This sequence divergence from canonical human AstVs suggested that M3363 might have been transmitted from an animal reservoir (4,5).

When we reanalyzed ORF1a of M3363, we found that this strain was actually an MLB1-like AstV with >98% amino acid similarity to prototype and strains from the United States (Figure) that dated back to 1991. The fact that such closely related viruses were found in a scattered temporal and spatial pattern in children may indicate that MLB1-like AstVs represent a true human enteric virus, which was probably overlooked in the absence of adequate diagnostic reagents and protocols.

Krisztián Bányaı, Edina Meleg, Pascholina Moschidou, and Vito Martella

Author affiliations: Veterinary Medical Research Institute, Budapest, Hungary (K. Bányaı); University of Pécs, Pécs, Hungary (K. Bányaı E. Meleg); and University of Bari, Valenzano, Italy (P. Moschidou, V. Martella)

DOI: 10.3201/eid1601.091120

In Response: We thank Bányaı et al. (1) for drawing attention to the unpublished data of Walter (2), which was not part of the peer-reviewed literature at the time we described the complete genome of astrovirus MLB1 (2) or when we described our epidemiologic survey of stools collected in St. Louis, Missouri, USA (4). The results of Walter extend the known geographic range of astrovirus MLB1 to include Mexico, thus supporting our recent proposal that astrovirus MLB1 is likely to be globally widespread (4). We look forward to including the partial sequence generated by Walter in future analyses of astrovirus MLB1 genetic diversity. We strongly encourage Bányaı et al. to submit their sequence data to any
Optimal Therapy for Multidrug-Resistant
Acinetobacter baumannii

To the Editor: I read with interest the article by Doi et al. about a lung transplant patient presumed to have Acinetobacter baumannii ventilator-associated pneumonia (1), but some points deserve comment. A. baumannii is a relatively avirulent organism that frequently colonizes body fluids. For multidrug-resistant strains, antimicrobial drug selection is limited. Resolution of this patient’s pulmonary infiltrates suggests that they were not caused by A. baumannii that persisted in respiratory secretions. Because A. baumannii persisted in this patient’s respiratory secretions, colistin and ceftazidime were given. Colistin is an antimicrobial drug with low resistance potential; but when given by inhalation, it may lead to drug resistance (2,3).

Doi et al. stated that the patient’s A. baumannii strain lacked susceptibility to all available antimicrobial drugs but that ceftazidime and tigecycline were immediately susceptible (MICs 16 μg/mL and 2.0 μg/mL, respectively) (2). Intermediate susceptibility may also be interpreted as relatively susceptible when achievable serum or tissue concentrations exceed the MIC. The article did not mention the dosages of colistin, tigecycline, and ceftazidime. A 2-g dose of ceftazidime given intravenously results in peak serum levels of ≈163 μg/mL with a relatively low volume of distribution (0.29 L/kg), which would not be expected to eradicate A. baumannii in respiratory secretions. The high-dose intravenous tigecycline (initial dose of 200 mg followed by 100 mg daily) has been used to treat A. baumannii, achieving peak concentrations of ≈3 μg/mL, which exceed the isolate’s MIC of 2 μg/mL, and a high volume of distribution (8 L/kg), which would be expected to eradicate A. baumannii in respiratory secretions.

Optimal treatment for A. baumannii depends on susceptibility, pharmacokinetic principles, and site of infection. For optimal effectiveness, ceftazidime and tigecycline should have been given at high doses. To prevent potential resistance, antimicrobial drugs should not be given by inhalation (2). The alleged advantage of inhalation therapy is high local drug concentrations, but concentrations in some alveoli may be subtherapeutic (3). If possible, tigecycline should not be used to treat A. baumannii infections; however, if it is used, high doses should be given to optimize its pharmacokinetic attributes (4,5).

Burke A. Cunha
Author affiliations: Winthrop-University Hospital, Mineola, New York, USA; and State University of New York, Stony Brook, New York, USA

DOI: 10.3201/eid1601.090922

References
1. Doi Y, Husain S, Potoski B, McCurry KR, Paterson DL. Extensively drug-resistant Acinetobacter baumannii. Emerg Infect Dis. 2009;15:980–2. DOI: 10.3201/ eid1506.081006
2. David MD, Gill MJ. Potential for underdosing and emergence of resistance in Acinetobacter baumannii during treatment with colistin. J Antimicrob Chemother. 2008;61:962–4. DOI: 10.1093/jac/dkn009
3. Cunha BA. Aerosolized antibiotics are not a good idea—don’t go with the flow: primum non nocere! Crit Care Med. 2009;37:799–800. DOI: 10.1097/ CCM.0b013e3181959ba5
4. Cunha BA. Once daily tigecycline therapy of multidrug-resistant and non-multidrug–resistant gram-negative bacteria. J Chemother. 2007;19:232–3.
5. Cunha BA. Pharmacokinetic considerations regarding tigecycline for multidrug-resistant Klebsiella pneumoniae or MDR Acinetobacter baumannii urosepsis. J Clin Microbiol. 2009;47:1613. DOI: 10.1128/ JCM.00404-09

Address for correspondence: Burke A. Cunha, Infectious Disease Division, Winthrop-University Hospital, Suite 432, 222 Station Plaza North, Mineola, NY 11501, USA; email: emccaffrey@winthrop.org

Address for correspondence: David Wang, Washington University School of Medicine, Campus Box 8230, 660 S Euclid Ave, St. Louis, MO 63110, USA; email: davewang@borcim.wustl.edu

References
1. Bányaí K, Meleg E, Moschidou P, Martella V. Detection of newly described astrovirus MLB1 in stool samples from children [letter]. Emerg Infect Dis. 2010;16:169.
2. Walter JE. Genetic characterization of astroviruses associated with diarrhea among children in a periurban community of Mexico City, 2002 [doctoral dissertation]. Pecs (Hungary): Medical School, University of Pecs.
3. Finkbeiner SR, Kirkwood CD, Wang D. Complete genome sequence of a highly divergent astrovirus isolated from a child with acute diarrhea. Virol J. 2008;5:117.
4. Finkbeiner SR, Le BM, Holtz LR, Storch GA, Wang D. Detection of newly described astrovirus MLB1 in stool samples from children. Emerg Infect Dis. 2009;15:441–4. DOI: 10.3201/ eid1503.081213