Human Enterovirus Genotype C104, China

To the Editor: Human enteroviruses (EVs) are small, nonenveloped RNA viruses belonging to the family Picornaviridae. Approximately 100 EV genotypes have been identified. Recently, EV68 epidemics in respiratory tract infections (RTIs) have been reported worldwide (1,2). Moreover, rarely detected EVs (e.g., EV-C104 and EV-C109) have been increasingly identified in patients with RTIs (3–7), indicating a possible association of EVs with respiratory syndromes.

Little is known about the role of EV-C104 in RTIs. EV-C104 has been reported in 3 countries: Switzerland (7 children with pneumonia or otitis media) (3), Italy (3 adults and 4 children with RTIs) (4,7), and Japan (1 adult with an upper RTI [URTI]) (5). We report additional EV-C104 strains in 4 children with lower RTIs and in 1 adult with a URTI in China.

To identify EV infections, we collected nasopharyngeal aspirates from 3,108 children (1,963 boys) <14 years of age (median age 12 months; age range 0.3–168 months) who had lower RTIs at admission to Beijing Children's Hospital during March 2007–February 2012. Throat and nasal swab specimens were also collected from 9,232 adults (4,140 men) >15 years of age (median age 35.3 years; age range 15–97 years) with acute RTIs who received treatment at Peking Union Medical College Hospital during August 2006–February 2012. All samples were screened for influenza virus, parainfluenza virus type 1–4, respiratory syncytial virus (RSV), coronaviruses (229E, NL63, HKU1, and OC43), metapneumovirus, adenovirus, rhinovirus, bocavirus, and EVs (8). Overall, 37 (1.2%) children and 158 (1.7%) adults were positive for EV.

Because we could not amplify EV-C104 by using primers specific for the viral protein (VP) 1 region (9), we used a reverse transcription PCR to amplify the 5'-untranslated region/VP4/VP2 gene (10). Amplicons of ≈600 bp were obtained for samples from 5 patients: 4 boys 2–11 months of age (BCH2859A, BCH2892A, BCH2894A, and BCH3034A) and a 30-year-old man (PUMCH12286). BLAST analysis (www.ncbi.nlm.nih.gov) of sequences of these amplicons showed that the 590-nt sequences had 94.0% identity with that of the EV-C104 prototype strain CL-12310945.
had Leu

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had Pro110, but the PUMCH strain for the PUMCH strain (BCH strains VP2 among the BCH strains were amino acid sequences in VP4/ strain and the BCH strains. Deduced 97.7%–98.0% between the PUMCH C104 sequences from this study was 2011–February 2012. EV-C104 strains until November and 1,004 samples from adults for 6 and 1,765, 1,978, 1,350, 1,562, 1,573, and 1,004 samples from adults for 6 consecutive years, we did not detect EV-C104 strains until November 2011–February 2012.

Nucleotide identity of the EV-C104 sequences from this study was 99.5%–100% among BCH strains and 97.7%–98.0% between the PUMCH strain and the BCH strains. Deducing amino acid sequences in VP4/VP2 among the BCH strains were identical, albeit for 1 aa difference for the PUMCH strain (BCH strains had Pro109, but the PUMCH strain had Leu110, which was consistent with strains detected in children and adults in Italy). Deducing amino acid sequences for all 5 strains isolated in this study had 97.9%–100.0% identity with those from Switzerland, Italy, and Japan. BCH strains were community acquired because these 4 patients came from different cities and were admitted to different wards on different dates.

The 4 EV-C104–positive boys all had fever and cough for >10 days before their hospitalization. Chest radiographs showed increased lung markings or patchy shadows diagnosed as pneumonia or bronchopneumonia. RSV or adenovirus was also detected in 3 of the boys. The fourth boy was positive for parainfluenza virus type 1, adenovirus, and bocavirus. Clinical outcomes for all 4 children were favorable. The EV-C104–positive man had fever, chills, pantaliga, and expectoration for 1 day before a URTI was diagnosed. EV-C104 was the only virus detected in this patient.

We compared relative viral loads for all viruses in the 5 patients and quantified viral load of EV-C104 and other viruses by using real-time PCR (methods available upon request). Median viral load in the 5 patients was 2.4 × 10^6 RNA copies/mL (range 5.6 × 10^5–7.0 × 10^6 copies RNA/mL (Table, Appendix, wwwnc.cdc.gov/ EID/article/19/4/12-1435-T1.htm).

Overall, we found few (5/12,340) EV-C104–positive specimens. All EV-C104–positive children were co-infected with RSV or adenoviruses (high viral loads) in our study. The role of EV-C104 in RTIs needs to be further studied. Nevertheless, the finding of EV-C104–positive adults with high viral loads in China (3.9 ×10^6 RNA copies/mL and Italy (2.0 × 10^6 RNA copies/mL) (7) indicates a possible association between EV-C104 with RTIs. Our data also confirm a wide distribution of EV-C104.

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Monkey Bites among US Military Members, Afghanistan, 2011

To the Editor: We take serious issue with the dispatch by Mease and Baker on monkey bites among US military members in Afghanistan during 2011 (1). In particular, we are troubled by the first paragraph. The dispatch opens by listing bites from rhesus macaques (Macaca mulatta) as one of the many risks faced by military personnel deployed to Afghanistan. Although technically a true statement, it is misleading in its perspective. Since 2001, ≈2,000 US soldiers have died in Afghanistan and another ≈18,000 have been wounded in action (2). The authors juxtapose this toll with minor injuries incurred by 10 soldiers who flouted explicit rules prohibiting contact with pet monkeys.

None of the bitten soldiers were reported to have sequelae. Furthermore, the first paragraph leaves the impression that a US Army soldier who died of rabies while serving in eastern Afghanistan may have contracted the disease from a macaque. This finding would be an extremely unlikely occurrence.

We have yet to see a single credible report of macaque-to-human transmission of rabies. In fact, we have yet to see a report of naturally acquired rabies infection in a macaque. Similarly, although antiviral prophylaxis is routinely prescribed to persons bitten by rhesus monkeys, there is not a single report of herpes B virus infection in a human outside the laboratory/zoo context, although thousands of persons are likely bitten by macaques in Asia every year (3,4).

In contrast, zoonotic transmission of simian foamy virus, a retrovirus ubiquitous in nonhuman primates, has been shown to occur from macaques to humans, probably through monkey bites, although this virus has not been shown to cause disease in humans (5). Although it is advisable to avoid contact with monkeys, risk for disease transmission should be placed in proper perspective. Exaggerating risks of bites has, in the past, led to irrational culling of entire populations of macaques (6).

In Response: In response to the letter by Engel et al. (1), we concur that combat-related deaths and illness are a greater risk than monkey bites for deployed military personnel. Furthermore, we agree that risk for monkey bites should be considered in perspective with other risks faced by deployed personnel. We also believe that action taken to decrease macaque populations in response to risks mentioned would be irrational and inappropriate; in a country affected by war, wildlife conservation efforts are needed. We did not intend to imply that the rabies-associated death mentioned in our article was caused by contact with a macaque (2). As reported elsewhere, the patient likely contracted rabies from a dog bite (3).

Nonetheless, we believe that risk for monkey bites deserves the attention of deployed medical providers. Risks for bacterial infection and major local trauma are critical for any macaque bite. We acknowledge that risk for contracting viral disease (rabies or B virus infection) from macaques in Afghanistan is misleading in its perspective. Since 2001, ≈2,000 US soldiers have died in Afghanistan and another ≈18,000 have been wounded in action (2). The authors juxtapose this toll with minor injuries incurred by 10 soldiers who flouted explicit rules prohibiting contact with pet monkeys.

None of the bitten soldiers were reported to have sequelae. Furthermore, the first paragraph leaves the impression that a US Army soldier who died of rabies while serving in eastern Afghanistan may have contracted the disease from a macaque. This finding would be an extremely unlikely occurrence.

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