Methicillin-Resistant Staphylococcus aureus (MRSA) Isolated From Pets Living in Households With MRSA-Infected Children

To the Editor—Methicillin-resistant Staphylococcus aureus (MRSA) is among the most important causes of human healthcare-associated infections. Various studies have described suspected interspecies transmission of MRSA between human patients, their family members, and pets living in the same household [1–5]. Similarly, we described MRSA isolation from pets residing in a long-term care facility [6]. The recent emergence of community-associated MRSA (CA-MRSA) among adults and children who lack traditional health-care associated risk factors has raised concern in both the veterinary and medical communities about the role of companion animals in CA-MRSA transmission.

To characterize the potential for interspecies transmission of MRSA, we conducted a cross-sectional study of dogs and cats living in households with a known MRSA-infected child. This study was approved by the University of Minnesota Institutional Animal Care and Use Committee and the Minnesota Department of Health Institutional Review Board. Case households were identified through confirmed MRSA case reports of patients, 18 years of age. These reports were collected from 12 sentinel hospital laboratories participating in an ongoing study of human CA-MRSA. Case households were asked whether there were pets in the household and whether they were willing to participate in the study. Trained staff collected swab samples at 3 times (initial visit and at 6 months and 12 months). Initial visit to the household occurred 44–107 days after the date of MRSA infection onset in the child. Swab samples were taken from the anterior nares (or nasal surface) and/or rectal or perineal areas and submitted to the Minnesota Veterinary Diagnostic Laboratory.

Table 2. QTc Interval Distribution in Patients With Prolonged QTc Intervals

<table>
<thead>
<tr>
<th>QTc interval</th>
<th>ARV+ (%</th>
<th>ARV– (%</th>
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<tbody>
<tr>
<td>440–499ms</td>
<td>20 (95%)</td>
<td>6 (66%)</td>
</tr>
<tr>
<td>469–499</td>
<td>1 (5%)</td>
<td>3 (33%)</td>
</tr>
<tr>
<td>≥500</td>
<td>0</td>
<td>0</td>
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* ARV, antiretroviral.
Laboratory. Direct culture methods were used. Twenty-eight households were enrolled in the study, which included 18 dogs and 11 cats (149 total samples). MRSA was isolated from 1 cat and 1 dog. The dog was culture negative at the first household visit, positive at the second, and negative at the third. The cat was positive at the first visit and negative at the second and third visits. Isolates from the 2 animals were genotype USA300 (community-associated strains) and were indistinguishable by PFGE from the case patient’s initial infection isolate. There was no evidence of protracted, ongoing transmission in these households. Neither pet was treated.

This limited study provides evidence for interspecies transmission of MRSA in household settings. It is unclear whether the pets were colonized when the child became infected or whether the pet was exposed to MRSA from the child or a contaminated environment. Both pets were asymptomatic and appeared to be transiently colonized. Family members were provided general information about MRSA and encouraged to wash hands before and after interacting with household pets. This observational study of MRSA colonization in pets living in households with MRSA provides evidence that household pets likely do not need to be removed if a family member has a MRSA infection. However, general precautions, such as good hand hygiene to limit interspecies transmission, are encouraged. Additional social measures to limit contact during periods of active shedding (ie, clinical illnesses) may also be necessary.

Notes

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Conflicts that the editors consider relevant to the content of the manuscript have been disclosed.

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References