

Health Advisory: Nontuberculous Mycobacteria Infections Following Surgery

Minnesota Department of Health Oct 4, 2016 12:00 CST

Action Steps:

Local and tribal health department: Please forward to hospitals and clinics in your jurisdiction.

Hospitals, clinics and other facilities: Please forward to pediatricians, internists, family physicians, hospitalists, infectious disease specialists, cardiologists, pulmonary and critical care specialists, hematologist-oncologists, nephrologists, surgeons (general, cardiothoracic, vascular, orthopedic, neurosurgery), anesthesiologists, and infection preventionists.

Health care providers:

- Watch for and test patients with signs and symptoms of Nontuberculous Mycobacteria (NTM) infection up to 6 years following cardiothoracic surgery requiring cardiopulmonary bypass.
- Report suspect cases to MDH at 1-877-676-5414 (toll-free) or 651-201-5414.

Signs, symptoms, and presentations of NTM infections associated with exposure to heater-cooler units

These findings may present several months to several years following cardiothoracic surgery requiring cardiopulmonary bypass.

- Constitutional symptoms including: recurrent or persistent fever of unknown origin, night sweats, weight loss, fatigue, and failure to thrive among infants
- Pain, redness, heat, or pus around a surgical incision
- Prosthetic valve endocarditis
- Prosthetic vascular graft infection
- Mediastinitis
- Evidence of disseminated infection, including embolic and immunologic manifestations (e.g., splenomegaly, arthritis, osteomyelitis, bone marrow involvement with cytopenia, chorioretinitis, pneumonitis, hepatitis, nephritis, myocarditis, and cerebral vasculitis)
- Granulomatous disease, which may be misdiagnosed as sarcoidosis
- Abnormal laboratory findings may include: anemia, leukopenia, thrombocytopenia, and elevated c-reactive protein, transaminases, and creatinine

Summary

Heater-cooler units (HCUs) are commonly used during cardiothoracic surgeries requiring cardiopulmonary bypass to warm and cool the patient's blood. Nontuberculous Mycobacteria (NTM) are bacteria that are found in surface water, tap water, and soil. Recent reports suggest an association between exposure to HCUs and serious, often life-threatening, NTM infections among patients with a history of cardiac surgery, potentially through the aerosolization of bacteria from contaminated water used in these devices. Types of NTM infections that could result from exposure to an HCU during surgery include, but are not limited to, prosthetic valve endocarditis, prosthetic vascular graft infection, sternotomy wound infection, mediastinitis, bloodstream infection, and disseminated infection including embolic and immunologic manifestations. *Patients undergoing cardiac procedures that do not require HCUs (e.g., ablations, biopsies, and insertion of stents, pacemakers, and defibrillators) are not at risk.*

Although this notice applies to all brands of HCUs and all types of NTM, one specific type of HCU (the Sorin Stöckert 3T HCU), has been associated with *Mycobacterium chimaera* infections, and there is evidence that some of these HCUs produced before September 2014 may have shipped from the factory contaminated with *M. chimaera*, a slow-growing NTM. **The median time from surgery to diagnosis of *M. chimaera* infection has been reported as 21-30 months. However, the full duration of risk remains undefined, and some unpublished infections may have been diagnosed closer to 6 years after surgery.** *M. chimaera* infections are challenging to treat, especially when diagnosis is delayed. Even with appropriate combination antibiotic therapy, deaths have been reported. There may be an increased risk of NTM infections among patients that received a prosthetic heart valve, graft, ventricular assist device, or any other prosthetic material.

M. chimaera is genetically similar to *Mycobacterium intracellulare* and may be reported by clinical laboratories as *Mycobacterium avium* complex (MAC) or *M. intracellulare*; check with your testing laboratory for clarification, if necessary. MDH is aware of facilities in Minnesota that are investigating *M. chimaera* infections.

Recommendations

1. The possibility of NTM infection should be considered for patients with a history of cardiothoracic surgery requiring cardiopulmonary bypass who present with any findings listed above; consider arranging consultation with an infectious disease specialist.
2. Have a low threshold for ordering acid-fast bacilli (AFB) cultures of blood and other sources, as indicated, for patients meeting these criteria. It is also important to obtain an AFB smear in order to have preliminary information while awaiting culture results.
3. If you suspect that exposure to a HCU may have led to a patient infection please notify MDH at 651-201-5414 or 1-877-676-5414.

A separate notice has been sent to infection preventionists and clinical microbiology laboratories in Minnesota that includes guidance on retrospective case finding

Additional resources

- [CDC: Non-tuberculous Mycobacterium \(NTM\) Infections and Heater-Cooler Devices Interim Practical Guidance: October 27, 2015](#)
- [FDA: Mycobacterium chimaera Infections Associated with Sorin Group Deutschland GmbH Stöckert 3T Heater-Cooler System: FDA Safety Communication: June 1, 2016](#)

A copy of this HAN is available in PDF and Word format at www.health.state.mn.us/han/.

The content of this message is intended for public health and health care personnel and response partners who have a need to know the information to perform their duties. It is for official use only. Do not distribute beyond the intended recipient groups as described in the action items of this message.