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Texas Preventable Disease NEWS

contents:

BUREAU OF EPIDEMIOLOGY 1100 West 49th Street, Austin, Texas 78756 (512-458-7207)

INFECTIOUS COMPLICATIONS OF CARDIAC SURGERY DUE TO "RAPIDLY-GROWING" MYCOBACTERIA -- TEXAS

There are many types of atypical (non-tuberculous) mycobacteria that cause disease in Texas. One group is characterized by rapid growth (three to five days) on culture medium. These organisms are saprophytes that live in water and only rarely cause disease in man. In 1984, the Bureau of Epidemiology, TDH, received reports of four rapidly-growing mycobacterial (RGM) wound infections following cardiac surgery, prompting a review of the Texas experience. Since 1979, reports have been received on 16 patients with RGM infections following open-heart surgery. Ten infections followed coronary artery bypass surgery, four followed prosthetic valve insertion, one followed a combined bypass/prosthetic valve procedure, and one followed tricuspid valve resection.

The wound infections may take as long as three months after surgery to become manifest, usually presenting with local drainage and minimal systemic symptoms. This drainage is often reported as "sterile", or growing "only diphtheroids." Rapidly-growing mycobacteria will grow on routine bacterial media but require a longer period of incubation. Further, laboratory workers must suspect the presence of mycobacteria to perform an acid-fast stain when these bacteria do grow.

With surgical debridement and antibiotic therapy with agents such as amikacin, cefoxitin, and doxycycline, the outcome in sternal wound disease is usually favorable; only one of 13 patients with this complication has died. In contrast, prosthetic valve endocarditis due to RGM is frequently fatal; all three Texas patients with this infection have died. Susceptibility testing is important to management of any serious infection, as the five subspecies of RGM all have different drug susceptibilities.

A recurrent concern is the possibility that patients are acquiring their infections from a single source (ie, a contaminated material or device used in surgery). Analysis of the isolates obtained from these 16 patients, however, does not indicate a common source. Although only two species of Mycobacterium are involved, M. fortuitum and M. chelonei, more sophisticated testing including subspecies identification, antibiograms, heavy metal susceptibility, and plasmid analysis, suggests that at least 6 different organisms are involved (Table 1). Five of the cases of M. chelonei occurred in Corpus Christi in 1981 and represent an identified cluster.[1] The remaining 11 infections appear to be isolated or sporadic infections.

Although these infections occur sporadically in Texas, they may be preventable. These bacteria are common contaminants of potable water in Texas, including non-sterile water used in hospitals. The investigators in Corpus Christi found that a pail of nonsterile ice was used to cool a bag of (sterile) cardioplegia solution before it was infused into patients. Bacteria on the outside of the bag conceivably could have been sprinkled onto the operating field when the infusion was begun. For

Table 1.

Laboratory characterization of rapidly-growing mycobacteria associated with cardiac surgery in Texas, 1979-1984.

PATIENT #	YEAR	TYPE SURGERY	SPECIES/SUBSPECIES	PLASMID(S)	DOXYCYCLINE* SENSITIVITY
1	1979	prosthetic valve	chelonei/abscessus	?	R
2	1979	**CABG/prosthetic valve	fortuitum/fortuitum	?	S
3	1980	prosthetic valve	fortuitum/fortuitum	?	S
4	1981	CABG	chelonei/abscessus	YES(2)	R
5	1981	prosthetic valve	chelonei/abscessus	YES(2)	R
6	1981	CABG	chelonei/abscessus	none	R
7	1981	CABG	chelonei/abscessus	none	R
8	1981	CABG	chelonei/abscessus	none	R
9	1981	tricuspid valve resection	chelonei/abscessus	none	R
10	1981	CABG	fortuitum/fortuitum	YES(1)	S
11	1981	CABG	fortuitum/fortuitum	none	S
12	1981	CABG	fortuitum/fortuitum	none	S
13	1984	CABG	fortuitum/fortuitum	?	R
14	1984	prosthetic valve	fortuitum/third biovariant complex	?	S
15	1984	CABG	fortuitum/?	?	S
16	1984	CABG	fortuitum/third biovariant complex	?	R

*Approximately 50% of M. fortuitum are doxycycline susceptible, while all isolates of M. chelonei subspecies abscessus are resistant.

**CABG=coronary artery bypass graft.

this reason, it may be wise to eliminate non-sterile water from the operating room when performing open-heart surgery. Previous studies of clusters of RGM infections associated with median sternotomies in North Carolina and Colorado suggested that other factors such as the use of bone wax might be important. Bone wax was not used in all cases, however, and some infections have involved the graft donor site or prosthetic valve with no sternal involvement at all. This suggests that sources other than bone wax are important in Texas.

Rapidly-growing mycobacteria have been reported causing post-operative infections following cardiac surgery, augmentation mammaplasty, total hip replacement, cervical laminectomy, facial plastic surgery, saphenous vein excision, and dacryocystorhinostomy. The Texas Department of Health welcomes submission of clinical isolates of RGM, especially those causing surgical wound infections. Study of these organisms should lead to a more complete understanding of these rare but dangerous infections.

This report was prepared by Richard J. Wallace, Jr., MD, Tyler, Texas and Tracy L. Gustafson, MD, Director, Infectious Diseases Division, Bureau of Epidemiology, TDH.

REFERENCES:

1. Kuritsky JN, Bullen MG, Broome CV, Silcox VA, Good RC, Wallace RJ Jr. Sternal wound infections and endocarditis due to organisms of the Mycobacterium fortuitum complex. Annals Int Med 1983;98:938-9.

2. Hoffman PC, Fraser DW, Robicsek F, O'Bar PR, Mauney CU. Two outbreaks of sternal wound infections due to organisms of the Mycobacterium fortuitum complex. J Infect Dis 1981;143:533-42.

3. Wallace RJ Jr, Swenson JM, Silcox VA, Good RC, Tschen JA, and Stone MS. Spectrum of disease due to rapidly growing mycobacteria. Rev Infect Dis 1983;5:657-79.

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AIDS SYMPOSIUM

A symposium on AIDS will be presented Saturday, February 23, 1985, at the Shamrock Hilton Hotel, South Main at Holcombe Boulevard, Houston, Texas. Sessions will be presented by representatives from the Mayor's Task Force on AIDS, The City of Houston Health Department, Harris County Health Department, the UT Health Science Center at Houston, and the National Institute of Allergy and Infectious Disease of the National Institutes of Health. Sessions for primary care physicians will be held in the Emerald Room from 9:00 am until 5:00 pm. Sessions for allied health and public service personnel will be held in the Grand Ballroom from 12:30 pm until 5:00 pm.

Registration is free. However, pre-registration is required as a large attendance is expected. For more information contact: Ms. Marjorie Kraft, AIDS Conference - Houston/NIAID, c/o UT Health Science Center, Division of Continuing Education, PO Box 20367, Houston, Texas 77225; (713) 792-4671. Pre-registration deadline is February 18, 1985.

VIRAL ISOLATES FOR DECEMBER 1984

VIRUS	COUNTY OF RESIDENCE OF PATIENT(S) (NUMBER OF ISOLATES)
Cytomegalovirus	Dallas(1), Galveston(3)
Coxsackie B3	Galveston(1)
Echovirus 11	Galveston(1)
Echovirus 14	Bell(1)
Echovirus 30	Galveston(1)
Influenza A(H3N2)	Grayson(1), Hill(1)
Rotavirus	Dallas(1), Lubbock(9), Travis(1)
Varicella/Zoster	Dallas(1)
Chlamydia trach.	Dallas(4), Travis(13)

Sporadic infections with influenza viruses have been reported throughout the state during this season. Influenza A(H3N2) virus has been isolated from patients in Harris(5), Grayson(1), and Hill(1) counties. All seven isolates were cultured from throat swab specimens collected November 29 through December 12, 1984. A single influenza A(H1N1) virus and two influenza B viruses have also been identified.

Sporadic influenza virus infections in late November and December usually indicate widespread influenza virus activity in January and February. However, no community outbreaks of influenza virus have been reported to date.

Rotavirus infections display a seasonal pattern with peak occurrence in winter months of the year. Rotaviruses may account for more than 80% of cases of diarrhea in hospitalized infants during the winter months. Diarrhea resulting from rotavirus infection is uncommon in adults and in children over 5 years of age.

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