Vol. 45 week no. 29 ending July 20, 1985

Texas Preventable Disease NEWS

contents:

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

STATUS OF MYCOLOGY SERVICES REQUESTED FROM THE TEXAS DEPARTMENT OF HEALTH

The Bureau of Laboratories of the Texas Department of Health (TDH) is a reference laboratory for fungal culture identification. Fungi are received from hospitals, clinics, and private physicians, as well as from city-county health departments across the state. Some of these sources submit all fungi cultured in their laboratories, while those laboratories actively studying fungi send only those presenting a problem in identification or tentatively identified pathogens for confirmatory tests. Because of these variations, the cultures submitted to TDH may not be representative of the various fungal genera appearing in primary clinical fungal cultures in Texas. A review of fungal cultures received by the TDH laboratory was made for fiscal years 1982-83 and 1983-84 to see which genera comprise these cultures and to what degree they are associated with clinical disease.

About one third of the organisms identified by the TDH laboratory were yeasts (Table 1). Many of these were probably normal flora as they were cultured from sites frequently colonized by these fungi. For yeast identification, cell and colonial morphology are of limited value and often must be supplemented with biochemical tests to determine species.

Although an increase in the incidence of yeast infections was expected due to the expanding elderly population and the growing numbers of persons on immunosuppressive drug therapy, the total number of yeasts submitted to the TDH did not increase for the time period studied. Species not identified in 1982-83 were seen in 1983-84, but certain species observed in the earlier year did not appear in the latter (Table 2). However, the genera of yeasts reported were the same for each year.

The decrease in the percentage of yeasts identified to species level is noteworthy. For 1982-83, 63% of yeasts were speciated, whereas only 56% were speciated in 1983-84. Among the factors that may have influenced the decline in the number of identified species is the omission of the specimen source information on the request form. Since it is the TDH laboratory policy to identify yeasts only to the genus level when no specimen source is indicated, generally, less time and effort is expended on yeasts that are submitted without source information. The nature of the source is often a clue to the possible significance of a yeast (or any fungus) as an etiologic agent. Therefore, it is most important that submitting laboratories include complete information on the specimen request form so that appropriate attention may be given to each specimen.

Two thirds of the cultures submitted each year were filamentous fungi. Approximately ten percent of these cultures were isolates of Histoplasma and Coccidioides. It would be incorrect, however, to conclude that one in ten molds isolated in the average clinical laboratory is one of these genera of systemic pathogens, since

these are reportable disease agents and, as such, they receive priority attention when recognized by submitting laboratories.

There is no correlation between the relative disease incidence of a genus and how often it is submitted to the TDH laboratory. This is well-illustrated by comparing the numbers of dermatophytes and the numbers of saprophytic Aspergillus species received. The agents of dermatophytosis -- Trichophyton, Microsporum, and Epidermophyton -- constituted less than ten percent of the mold cultures submitted, and yet, these are widely recognized as very common agents of fungal disease. In contrast, about 20% of the total filamentous fungi submitted were species of Aspergillus other than A. flavus, A. fumigatus, and A. niger, three frequently pathogenic species. It is frequently more difficult to speciate dermatophytes than it is to separate the pathogenic aspergilli from the saprophytic ones. Distinguishing among the aspergilli apparently is a problem for some submitting laboratories.

A large number of specimens (16.6%) is received each year in an unacceptable condition (eg, mixed cultures, nonviable cultures, and cultures of bacteria mistakenly submitted for fungal identification). Care in culture technique and prompt attention to shipment can eliminate some of these unacceptable specimens. The TDH Bureau of Laboratories requests that only pure cultures be submitted; however, an effort is made, whenever feasible, to isolate and identify even those fungi submitted in mixed cultures.

For further information regarding mycology studies, contact the Bacteriology - Mycology Branch, Bureau of Laboratories, TDH, 1100 W. 49th Street, Austin, TX 78756; telephone: (512) 458-7581 or STS 824-9581.

This report was submitted by James L. Harris, PhD, Chief of the Mycobacteriology-Mycology Section, Bacteriology-Mycology Branch, Bureau of Laboratories, Texas Department of Health.

Table 1.
Fungal specimen types received by the TDH laboratory, fiscal years 1982-83 and 1984-84.

	FY 1982-83 n(%)	FY 1983-84 n(%)
YEASTS		
Specimens received	491	389
Species identified	17	20
MOLDS		
Specimens received	963	838
Species identified	70	71
Dermatophytes	81 (8.4)	74 (8.8)
Histoplasma & Coccidioides	91 (9.4)	113 (13.4)
Saprophytic Aspergillus species	207 (21.4)	193 (23.0)
UNSATISFACTORY SPECIMENS	160 (9.4)	2 (11.8)
MIXED SPECIMENS IDENTIFIED*	74	116
TOTAL SPECIMENS RECEIVED**	1697	1622

*Mixed cultures include fungi contaminated by bacteria or different fungi in the same cultures. Molds and yeasts have been successfully separated and identified, and as many as three molds have been isolated and speciated from a single culture tube.

**Combined yeast and mold totals do not equal this number since CDC proficiency testing specimens are included only in this grand total figure. Also, the identification of multiple fungal organisms in specimens submitted ostensibly as pure cultures influences the totals.

Table 2.
Yeast genera and species, TDH laboratory,
fiscal years 1982-83 and 1983-84.

	FY 82-83	FY 83-84		FY 82-83	FY 83-84
Aureobasidium sp.	1	10	Geotrichum sp.	0	9
Candida sp.	167	133	candidum	5	0
albicans	168	131	capitatum	1	0
guilliermondii	1	1	Rhodotorula sp.	5	3
krusei	1	3	Saccharomyces sp.	1	1
parapsilosis	11	11	Torulopsis sp.	0	2
pelliculosa	0	1	glabrata	82	55
tropicalis	9	4	Trichosporon sp.	0	5
stellatoidea	1	0	cutaneum	12	2
Cryptococcus albidus	1	1	Ustilago sp.	5	9
neoformans	21	10	Yeast (unspec.)	0	6
uniguttulatus	0	1			

* * *

BREATHING DIFFICULTY RESULTING FROM DRUG-INDUCED METHEMOGLOBINEMIA

The following article is reprinted from the Missouri Epidemiologist, Vol. 7/No. 6, March-April, 1985.

An elderly patient from a nursing home was seen because of breathing difficulty and cyanosis. An arterial blood gas showed an elevated methemoglobin level. The patient was found to be on AzoGantrisin, which she had been taking for about one month. Methemoglobin levels returned to normal after the medication was stopped.

The reversible oxygenation and deoxygenation of hemoglobin requires the heme iron of deoxyhemoglobin to remain in the ferrous (Fe+2) form. In methemoglobin the iron atom is oxidized to the ferric (Fe+3) form, making the hemoglobin molecule incapable of binding oxygen. An elevated methemoglobin level should not be confused with carbon monoxide poisoning which produces an elevated carboxyhemoglobin level.

A variety of chemical agents and drugs can accelerate the oxidation of hemoglobin and produce a significant methemoglobinemia in an otherwise normal individual. Although methemoglobinemia induced by drugs is usually an asymptomatic condition, severe acute methemoglobinemia has caused severe cyanosis, collapse, coma, and death. The drugs and chemicals that have a toxic effect on the hemoglobin molecule producing methemoglobin are acetanilid, phenacetin, nitrites, trinitrotoluene, nitrobenzene, aniline, hydroxylamine, dimethylamine, sulfanilamide, para-aminosalicylic acid, dapsone, primaquine, chloroquine, prilocaine, benzocaine, lidocaine, menadione, naphthoquinone, naphthalene, resorcinol, and phenylhydrazine. Prilocaine and sulfanilamide have commonly been reported to cause methemoglobinemia in normal persons.

MALARIA IN TRAVELLERS TO MEXICO

The Bureau of Epidemiology has recently learned of eight Texas residents (six from the San Antonio area and two from Houston) who probably acquired malaria (Plasmodium vivax) infections while vacationing in Acapulco, Mexico. The eight were members of three groups totaling 27 individuals (30% attack rate) who stayed one week or less in Acapulco during the period May 23-June 5, 1985. All three groups stayed in privately-owned villas on the eastern peninsula of Acapulco Bay (the side closest to the airport). The villas are of modern construction, with screened and air-conditioned sleeping quarters, but with open-air living and dining areas to capture the ambiance of the easy-living, tropical lifestyle. All three groups reported the presence of biting mosquitoes during the evening hours. Malaria is transmitted by an infected female anopheline mosquito that feeds between dusk and dawn.

Malaria is a relatively rare disease in Texas (77 imported cases were reported during 1984), and health care providers need to be alert to its possibility in patients with febrile illnesses who have been in Mexico recently. Two of these Acapulco cases were originally thought to have hepatitis and a third was believed to have the "flu." Malaria is a reportable disease in Texas, and all cases should be reported to the appropriate local health department or the the Bureau of Epidemiology (1-800-252-8239). We are especially interested in learning of additional cases who had visited in Acapulco and encourage physicians and health departments to report such cases as quickly as possible. This information has been reported to the Centers for Disease Control (CDC) and the Pan American Health Organization Field Office in El Paso for appropriate action.

We are also aware of a New Mexican couple and an individual from Ontario, Canada, who acquired malaria earlier this year while staying outside the city center of Puerto Vallarta, Mexico. Therefore, the Texas Department of Health recommends that malaria prophylaxis be considered for persons travelling outside the city center areas in resort cities on the Pacific Coast of Mexico. Note that if travel outside city centers will be limited to bright daylight hours, prophylaxis is not necessary.

TEXAS PREVENTABLE DISEASE NEWS (ISSN 8750-9474) is a free, weekly publication of the Texas Department of Health, 1100 West 49th Street, Austin, TX, 78756-3180. Second-class postage paid at Austin, TX. POSTMASTER: Send address changes to TEXAS PREVENTABLE DISEASE NEWS, 1100 West 49th Street, Austin, TX 78756-3180.

TEXAS PREVENTABLE DISEASE NEWS
Texas Department of Health
1100 West 49th Street
Austin, TX 78756-3180

SECOND CLASS POSTAGE
PAID AT AUSTIN, TX

RETURN POSTAGE GUARANTEED