Tuberculosis in Oriental Immigrants

To the Editor:

We read with interest the article by Byrd et al concerning tuberculosis in Oriental immigrants. Although the authors correctly point out that immigrants from Asia do have higher rates of drug resistance than the indigenous US population, there are several statements in that article which we feel deserve comment and clarification.

In the ongoing US Public Health Service primary drug resistance (PDR) study,1 21 percent of cases considered of Asian origin were found to be excreting organisms resistant to one or more of the ten drugs tested. However, not all these persons were immigrants, as implied by Byrd et al; an unknown proportion of our study participants of Asian heritage were American born. Therefore, our study data cannot be used to assess resistance rates among immigrants.

As we stated in our article, the importation of drug-resistant strains from other parts of the world is a likely explanation for the high PDR rates observed among persons of Hispanic or Asian backgrounds. However, in areas where large numbers of persons of Asian and Hispanic descent have settled, PDR rates are also high among white and black subjects. Although we can hypothesize that most drug resistance in these areas has been imported from other countries, our data do not prove that this is the case.

Byrd and associates also imply that the state of Hawaii has partially solved the problem of imported drug resistance with a policy toward the admission of patients with tuberculosis which differs from that of the other 49 states. This is incorrect. Persons with “active” disease are not allowed to enter any state in the United States without special waiver. A more plausible reason for the lower resistance rate observed by Pien et al3 in Hawaii can probably be attributed to differences in criteria for drug resistance. Pien et al used the following drug concentrations (in μg/ml) to determine resistance: streptomycin 10, isoniazid 1, ethambutol 8, and rifampin 5. By comparison the drug concentrations used by Byrd et al were much lower—streptomycin 2.5, isoniazid 0.1, ethambutol 5, and rifampin 1. By using relatively high drug concentrations, Pien et al screened out strains with a low degree of drug resistance. On the other hand, Byrd et al, by using low concentrations, increased the likelihood of finding resistant strains.

As Byrd and colleagues point out, their inability to obtain drug susceptibility test results for 40 patients who had become culture negative by the time they entered the hospital, tends to inflate the resistance rate among their patients. It is difficult to believe that “all dependents found to have tuberculosis while living overseas in their home country are referred” to Scott Air Force Base for evaluation. Since many patients with tuberculosis are managed as outpatients, we would wonder if there might not have been other patients with susceptible organisms who responded to treatment and were not sent to Scott Air Force Base.

Although drug resistance is a problem among persons of Asian descent, the magnitude of the problem may not be as great as that implied by Byrd and coworkers. Preliminary data on drug resistance among Indochinese refugees in San Francisco indicate that drug resistance rates are between 15 and 20 percent (Austin Brewin, M.D., City and County of San Francisco Department of Public Health, personal communication). These data are similar to those observed in the earlier US Public Health Service study and other data published by Canadian workers.4

Dixie E. Snider, Jr., M.D., and
Laurence S. Farer, M.D.
Tuberculosis Control Division,
Bureau of State Services,
Center for Disease Control, Atlanta

REFERENCES

To the Editor:

I appreciate the comments of Drs. Snider and Farer regarding our publication on drug resistance in tuberculosis Oriental immigrants. We had, in fact, incorrectly assumed that all the patients classified as “Asians” in the United States Public Health Service (USPHS) study2 had emigrated from the Orient. In light of this fact, one may speculate the incidence of drug resistant disease may have been even higher than 20 percent in the immigrant subgroup had their numbers been diluted by nonimmigrant Oriental subjects with sensitive organisms.

Regarding our study, it was specifically noted in the subtitle of our paper, as well as in the discussion, that our military-dependent patients clearly constituted a subgroup of Oriental immigrants, and that their incidence of drug-resistant disease might not be representative of all Asian immigrants.4 The unpublished data on the Vietnamese “boat people” cited by Drs. Snider and Farer is also based on a subgroup principally of Chinese extraction and generally of a different economic class than the majority of ethnic Vietnamese. Therefore, these data likewise should not be offered as representative of all Oriental immigrants.

It is indeed possible that some tuberculous Oriental Air Force dependents have entered the United States without being seen at our hospital despite very clear Air Force immigration regulations in effect at the time of this study. To our knowledge, however, no additional Oriental patients have appeared on the annual tuberculosis control report forms required of every Air Force medical facility in the United States.

In our paper, we noted the fact that patients arriving at our hospital already culture-negative might indeed inflate resistance rates.4 However, as we pointed out, even if this subgroup were considered to have sensitive organisms, the incidence of resistance to one drug would still be 41 percent and to multiple drugs 33 percent.

The variation in criteria used to define resistance does
create comparison difficulties between different studies. Had Pien et al. used our lower drug concentrations to define resistance, which are essentially the same concentrations used in the USPHS study, a higher incidence of drug resistance likely would have surfaced, thus supporting our view.

Drs. Snider and Farer also refer to 11.7 percent incidence of primary drug resistance in the Canadian Oriental immigrant study of Eidus et al. However, in those Orientals who received treatment in Asia prior to emigration to Canada, the same investigators noted an incidence of 43 percent secondary drug resistance. Such a high incidence of drug resistance is common in any group of retreatment patients, but the problem in Asia is compounded by the fact the patient is often unaware he has been treated for tuberculosis. For example, in some Asian countries, isoniazid (INH) has been placed in cough syrups.

I believe it important not to de-emphasize the problem of drug resistance in the Oriental immigrant as this may lead to the prescribing of an antituberculosis regimen which will likely fail in an unacceptable proportion of the patients. Rather, as urged by a Canadian authority, these individuals should be considered potentially resistant to INH, streptomycin, and para-aminosalicylic acid and other drug combinations used until sensitivity studies are available. It is well-established that using a drug such as rifampin with INH in a patient with INH-resistant organisms may result in the organisms becoming resistant to the second drug as well. Even if one uses the selective data of Snider and Farer and assumes that the resistant organisms occur in only 15 to 20 percent of patients, possible therapeutic failure and the loss of valuable drugs such as rifampin and ethambutol in this percentage of patients would be unacceptable to most physicians.

Richard B. Byrd, Col, MC, USAF, FACC
Scott AFB, Illinois

References

5 Cheung OT; Drug resistance in patients with pulmonary tuberculosis. Can Med Assoc J 1975; 113:848-849

More About NaOH in the Management of Malignant Pleural Effusions

To the Editor:

Following our letter to the Editor in 1976 outlining our preliminary three-year experience on the use of 0.5 percent NaOH in the management of pleural effusions secondary to metastatic breast cancer, we submitted to Chest a brief paper providing more data and defining our position concerning the use of intrapleural irritant substances.

In that unpublished manuscript, we selected cases with pleural effusions and "trapped lungs" (of thyroid and bronchogenic origin) treated by limited thoracotomy and decortication, followed by intra- and postoperative NaOH instillation showing survivals of 20 and 25 months respectively without recurrence of effusion.

During 1978 we published our opinions in regard to the use of pleural irritants and the prerequisites for the complementary-therapeutic approach to be successful. Such observations completely coincide with those of Sahn et al. in his well-designed investigation recently published in Chest.

In that article we pointed out that the management of malignant pleural effusions must necessarily include pleural drainage by the simplest, safest and least expensive procedure; pleurotomy and active aspiration of fluid accomplish these goals perfectly in almost all cases. Besides, it ensures the complete evacuation of pleural fluid, prevents dilution of the irritant and establishes appropriate timing via the NaOH instillation.

We added: "We are convinced that for NaOH or any other pleural irritant to be effective, it is mandatory to achieve as a previous condition complete pulmonary expansion to allow both pleural surfaces to come into contact. Furthermore, it appears of utmost importance to use substances—acid or alkaline— with the most potent irritant capabilities, and in this sense, NaOH satisfies this requirement."

Sahn's paper seems to give us reason since his investigation shows that 0.5 percent NaOH produces the highest variation in pH within the pleural cavity and appears, together with tetracyclines, as the most effective (substance) in producing pleural symphysis."

We sustain the hypothesis that sodium hydroxide—or any other violent pleural irritant—modifies the pleural fluid turnover by diminishing its production, in spite of the concomitant irritative action upon visceral pleura and lymphatic drainage pathways. The reduction in the filtration coefficient of the parietal pleura as a result of the destruction of the mesothelial layer and the transient obliteration of the pleural capillaries, are important enough to give time to pleural symphysis.

Our experience with 21 consecutive cases of malignant effusions including cases of bilateral carcinoma pleural effusions and also some selected cases of bronchogenic carcinoma associated with pleural fluid collection, to which we have devoted our attention as part of a line of investigation with complementary immunochemotherapy in advanced carcinomas, only confirm the foregoing observations.

Alfredo Riosaco, M.D.
Naval Institute for Medical Research (INIME),
Hospital Naval de Valparaiso, Valparaiso, Chile

Reprint requests: Dr. Riosaco, INIME Hospital Naval de Valparaiso, Valparaiso, Chile

References

2 Riosaco A. NaOH intrapleural en el tratamiento de las pleuris carcinomatosa. Rev Chilena de Cirurgia 1978; 30:228-231
6 Thorsrud GK. Pleural reaction to irritants. Acta Chir Scand suppl 1965; 335:11-25