MEDICAL GRAND ROUNDS
April 16, 1964

# TREATMENT OF TUBERCULOSIS

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"I am quite sure we will get rid of tuberculosis before the Americans because they are much less co-ordinated and more chaotic, with a lot of private treatment and so on, much of it very bad." John Crofton, Scotland, 1961.

"The first country to eliminate tuberculosis will be that country which regards it as a serious problem to the end." Etienne Bernard, Paris, 1959.

During the past 18 years, amazingly effective chemotherapy for pulmonary tuberculosis due to Myco. tuberculosis var. hominis has revolutionized the treatment of tuberculosis. All other aspects of treatment, e.q. bed rest, collapse therapy, deforming surgical procedures, etc., have become mainly of historical interest. The patient whose organisms are initially sensitive to the standard drugs can expect rapid reversal of infectiousness and arrest of disease in virtually all instances if the drugs are properly prescribed and successfully administered for a sufficient period (18-24 mo.). On the other hand failure of initial chemotherapy for whatever cause can be expected to result in drug resistant organisms, a disaster for the patient and society.

Aims of Drug Treatment:

(1) arrest disease
(2) render non-infectious
(3) prevent relapse

Standard Drugs:

1. Isoniazid (isonicotinic acid hydrazide, INH)
   Para-amino-salicylic acid (PAS)
   Streptomycin (SM)
2. Combinations:
   (a) INH (300 mg.) plus PAS (15 gm.)
   (b) INH plus PAS (as above) with Streptomycin (1 gm.) daily, first 90 days
   (c) INH (300 mg.) plus Streptomycin (1 gm.) (daily Streptomycin usually changed to bi-weekly at 90 days)
   (d) INH alone (for minimal, non-cavitary disease only)
3. Toxicity:
   (a) INH: 0.5% untoward reactions, mainly peripheral neuritis or skin rash. Toxic encephalopathy encountered with higher dosage. Rarely: hemolytic or aplastic anemia, thrombocytopenic purpura, agranulocytosis, or pancytopenia.
   (b) PAS: 7.6% untoward reactions, mainly of two types: gastrointestinal-anorexia, nausea, vomiting, diarrhea; "allergic"-fever, rash, liver damage. (a goitrogenic action is less common and dose-related-inhibition of organic binding of iodine in the synthesis of thyroid hormone).

(c) SM: 7.8% untoward reactions, mainly fever, skin rash; toxic effect on 8th nerve both vestibular and auditory portions.

4. Duration: 18-24 months continuous chemotherapy; reduction in bacillary population occurs mainly in early weeks but bacilli not eradicated; discontinuation prior to 18 months leads to increased frequency of relapse.

Second-line Drugs:

1. Used mainly in retreatment or instances of resistance to one of the standard drugs.
2. Pyrazinamide, Ethionamide, Cycloserine, Capreomycin, Viomycin, Ethambutol (investigational), Tetracycline, Kanamycin
3. Properties: increased toxicity, less therapeutic effect.

Role of Steroid Hormones With Antimicrobial Therapy:

1. Effectiveness of drugs neither enhanced nor lessened by hormone administration.
2. Used primarily to lessen constitutional manifestations of illness and in severe drug reactions. Use in meningitis with block to flow of cerebrospinal fluid has become traditional although therapeutic value not yet substantiated. Possible tissue sparing effect (slight) in acute tuberculous pneumonia.
3. Use of steroid hormones should be of short duration (2-3 weeks).

## TUBERCULOSIS CONTROL AND ERADICATION

Recalcitrant patients constitute only a small percentage of tuberculosis cases yet the consequences of one such patient may be seen from the following case: Case No. [redacted].

Radiographic changes consistent with pulmonary tuberculosis were present on chest film of [redacted] 1962, at [redacted]. Tuberculosis Control notified but patient evaded contact until [redacted] 1963. Patient threatened with warrant and voluntarily entered [redacted] [redacted] 1963. INH, PAS and SM begun for far advanced pulmonary tuberculosis; chemotherapy continued until patient left hospital without notice on [redacted] 1963. Located and placed under warrant [redacted], 1963, transferred to [redacted] on [redacted] 1963.

Note: This patient was president of a PTA and taught in a nursery school. She had close contact with at least 114 children (56 positive reactors, 6 known active cases) and 12 adults (10 positive reactors, 9 inactive primary infections).

## REFERENCES


Chemotherapy:

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2. Grofton, J. Drug treatment of tuberculosis. Brit. Med. J. July 30, 1960, 2:370-373; Aug. 6, 1960, 2:449-451.

A complete discussion of standard chemotherapy (INH, PAS, SM) and detailed guide for treatment of the patient with drug-resistant organisms.

3. McDermott, W. The chemotherapy of tuberculosis. Amer. Rev. Resp. Dis, 1962, 86:323-335.

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