EDITORIALS

The Case for Routine Supervision of Tuberculosis Treatment with the Medication Monitor

Lack of patient compliance with chemotherapeutic regimens is the major unsolved problem in treating tuberculosis. To solve the compliance problem, patients need intensive education concerning the importance of taking medication faithfully, convenient clinic services given by a warm concerned staff, and detailed surveillance measures to prevent them from being lost. For unreliable patients, the supervision of each outpatient dose of medication is usually needed.

This broad outline lacks an effective means to identify unreliable patients. Many health professionals believe they can judge patient reliability. For grossly unreliable individuals, like alcoholics, this may be possible; but most studies comparing health professionals' judgment with actual drug consumption show either no correlation or only partial correlation.

The usual methods of measuring medication consumption are of limited value. If patients fail to pick up the medicine, it indicates poor compliance; but the fact medication is obtained is no proof of ingestion. Multiple urine tests for the presence of medication are probably the most accurate measure of drug ingestion, but only if they're collected by surprise visits to the patients' home, school, or work place. For routine programs, such surprise collections are prohibitively expensive. If specimens are collected at the clinic, which is easy, it may be positive from patients who on other days take little or no medication, but took medicine just prior to the visit to conceal noncompliance. One study showed that compliance measured by clinic collected urine agreed with compliance measured by surprise urine collections in only 51 of 103 patients.

Medication monitor dispensers are available that utilize radioactive material and photographic film or a digital watch and computer chips to determine the time when medication is removed. Field trials with this type of device have clearly demonstrated great differences in medication compliance between patients. While patients could remove medication regularly, ingest none of it, and still create a record indicating compliance, it is highly doubtful if other than occasional individuals will do this, since it requires a daily premeditated act. A study involving cross checking monitor records with surprise urine tests revealed only two questionable instances where this practice may have occurred among 58 patients.

The major advantage of the medication monitor is that it provides detailed presumptive information concerning each dose of medication, far more information than can be obtained by any other measure of compliance. One reviewer has indicated that it comes closest to a gold standard for compliance measurements.

Unfortunately, the original medication monitor was for isoniazid and PAS. This resulted in a large cumbersome device, not suitable for today's regimens of isoniazid and rifampin or isoniazid and ethambutol. It is also time consuming to fill. To solve these problems, a modest engineering effort is needed.

When convenient equipment becomes available, a good case can be made to have all patients receiving self administered antituberculosis treatment take their medication from a monitor. Subsequent intensity of counselling and/or a change to completely supervised treatment could be planned on the basis of the patients' monitor records. Many professionals oppose such a proposal to avoid offending patients and because of our democratic tradition that individuals have the right to privacy and the right to ignore physicians' advice. These are clearly legitimate concerns, but are they as important as the problems associated with treatment failure?

With present practices, offense often occurs because the staff is ignorant of their patients' compliance. To minimize noncompliance, health professionals repetitively encourage all patients to take medication. For fully compliant patients, such recurrent exhortations can be insulting. If monitor records were available, this offense could be
avoided for reliable individuals. Similarly, patients incorrectly judged as unreliable could be spared the degrading experience of completely supervised treatment that requires multiple visits to the clinic each week.

If the proposed procedure of routinely monitoring each patient’s drug ingestion does not work in practice, the medication monitor would still be very useful in studying the reasons for noncompliance and strategies for improving compliance.

Thomas S. Moulding, M.D., F.C.C.P.
Denver

REFERENCE


3 Caron HS, Roth HP. Patient cooperation with a medical regimen. JAMA 1968; 203:120-26

4 Muschlin AI, Appel FA. Diagnosing potential noncompliance. Arch Intern Med 1977; 137:318-21

5 Moulding TS, Sbarbaro JA, Onstad GD. Supervision of outpatient drug therapy with the medication monitor. Arch Intern Med 1970; 73:559-64


7 Moulding TS. Vertical pill calendar dispenser and medication monitor for improving the self-administration of drugs. Tubercle 1967; 48:32-37

8 Yee RD, Hahn PM, Christiansen RE. Medication monitor for ophthalmology. Am J Ophthalmol 1974; 78:774-78

9 Moulding TS. The medication monitor for treating tuberculosis in the developing countries. Trop Doct 1979; 9:106-09

10 Moulding TS. Self-administration of isoniazid and thiacetazone studied by the medication monitor. Chest 1974; 65:234-35

11 Rudd P. In search of the gold standard for compliance measurement. Arch Intern Med 1979; 139:827-28

Idiopathic Dilation of the Right Atrium

Idiopathic dilation of the right atrium (IDRA) is a rare anomaly first described by Bailey in 1955. A 29-year-old woman was described with dyspnea, paroxysmal supraventricular tachycardia, and cardi-ac enlargement. Following surgical excision of the dilated right atrial wall, the patient was free of symptoms. A review of the international literature disclosed that only 28 cases have been reported since. Six of these were children whose ages ranged from 2 to 16 years. Besides these cases, in our institution an asymptomatic two-year-old boy undergoing preadoption evaluation was found to have severe cardiomegaly on chest roentgenogram. IDRA was confirmed by cardiac catheterization and angiography. Eight years after surgical excision of the dilated atrial wall, the patient remains asymptomatic, with a normal-sized heart.

The etiology of IDRA remains unclear; however, a congenital origin seems most likely as suggested by those cases diagnosed in early childhood and the young age at which the condition was first suspected in some adult cases. From a developmental standpoint, it is not known why dilation of the right atrium occurs. The causative mechanism might be a partial loss of atrial muscular fibers with progressive atrial enlargement. Macroscopically, the atrial wall appears similar to the aplastic right ventricle described in Uhl’s anomaly; however, in Uhl’s anomaly the right ventricle is always involved either alone or in association with other cardiac chambers, while in IDRA only the right atrium is affected. IDRA has been compared with the dilated right atrium, “atrium papyraceum,” seen in patients with rheumatic involvement of the tricuspid valve. However, the young age of several patients reported and the clinical cure of those who underwent surgical treatment supports neither a rheumatic process nor a form of primary cardiomyopathy with diffuse myocardial involvement and selective right atrial enlargement. Although histologic studies in IDRA are limited, no evidence for rheumatic disease or diffuse myocardial involvement have been found. Microscopically, findings consisted of lipomatous degeneration of the right atrium, hypertrophy of the atrial fibers, and irregular thickening and distribution of the muscle fibers, with lymphocytic infiltration of the atrial wall.

Patients with IDRA present a variable clinical picture. The anomaly was initially considered benign because some patients were asymptomatic; however, they often complained of easy fatigability, dyspnea, palpitations and syncope. Congestive cardiac failure and sudden death have been also described. These manifestations seem to be related to the development of supraventricular arrhythmias, atrioventricular conduction disturbances, and decreased cardiac output secondary to ventricular compression.