Intentional Isoniazid Overdosage in Young Southeast Asian Refugee Women*

Charles M. Nolan, M.D.; Anna M. Elarth, B.S.N.; and Heather W. Barr, P.H.N.

During a two-year period, from January 1984 through December 1985, six cases of intentional overdosage with isoniazid were reported in young Southeast Asian refugee women. The patients were aged 14 to 23 years, had all immigrated within one year and were receiving isoniazid preventive therapy for tuberculosis infection without disease. Clinically, all patients experienced generalized seizures, and three sustained moderate metabolic acidosis. All recovered uneventfully. Psychiatric evaluations revealed that two patients had major depression; two, adjustment disorders with depressed mood; and two, no psychiatric illness. The latter two patients and two others ingested an excessive amount of isoniazid immediately following an argument with a family member. Because tuberculosis infection is prevalent in refugees immigrating from Southeast Asia, isoniazid, given for six months to one year as preventive therapy, is one of the most frequently prescribed drugs during the early resettlement period. There may be an increased risk of intentional isoniazid overdosage during preventive therapy of young refugee women.

Mental disorders are common in refugees from Southeast Asia, who now number over three-quarters of one million in the United States. Depression has been consistently identified as one of the serious mental disorders experienced by refugees, and a documented manifestation of depression among refugees is attempted suicide. Medication overdose was found in one study to be the most frequent method of attempted suicide, but epidemiologic information was lacking including what specific drugs were involved. Such information would be useful in designing approaches to prevention of this serious problem in these new American citizens.

Blanchard and colleagues recently reported eight cases of suicidal isoniazid overdosages by Cambodian refugees in Minnesota. The purpose of the present report is to describe six additional cases of intentional overdosage with isoniazid among Southeast Asian refugees, all of whom were young women. In the present cases, the overdosage occurred during the first year after resettlement. Furthermore, as in the previous report, each patient described here was taking isoniazid alone as preventive therapy; no patient was being treated with multiple drugs for active tuberculosis.

METHODS

The cases described here were all reported to the Seattle-King County Department of Public Health Tuberculosis Control Section by the hospitals where care for them was given. Clinical details of each case were acquired by review of hospital and health department tuberculosis clinic records.

Statistics on refugees screened for tuberculosis at Seattle-King County Department of Public Health were provided by John Riess, Refugee Screening Project Coordinator. Data on reported toxic exposures to isoniazid were obtained from the Seattle Poison Center, Children’s Orthopedic Hospital and Medical Center, Seattle. Active surveillance for cases of isoniazid overdosage was accomplished by reviewing records of the Computerized Hospital Abstract Reporting System maintained by the Washington State Hospital Commission.

RESULTS

From January 1984 through December 1985, eight cases of intentional isoniazid overdosage requiring hospitalization were reported to the Seattle-King County Department of Public Health Tuberculosis Control Section. Six cases occurred in Southeast Asian refugees and serve as the basis for this report. The other two cases were also foreign-born patients: a 19-year-old Samoan woman and a 24-year-old Mexican man. Both of the latter patients had recently (within one month and within two months) started isoniazid preventive therapy for tuberculosis infection without disease at the time the overdosage occurred. Both patients sustained seizures, were hospitalized, and recovered uneventually.

Details of the cases of isoniazid overdosage in Southeast Asian refugees are given in Table 1. All occurred in women between the ages of 14 and 23 years. All cases were intentional, as opposed to accidental. Five patients had been screened for tuberculosis upon entry into the United States and were receiving isoniazid preventive therapy for tuberculosis infection without disease. Dates of the overdosage in those patients ranged from two months to 12 months after starting isoniazid therapy. The remaining patient (patient 1, Table 1) had ingested isoniazid tablets that had been prescribed for her brother.

All six patients sustained generalized seizures as the dominant clinical feature. Four patients experienced...
## Table 1—Details of Cases of Intentional Isoniazid Overdosage Among Young Southeast Asian Refugee Women

<table>
<thead>
<tr>
<th>Patient</th>
<th>Age, yrs</th>
<th>Nationality</th>
<th>Date of Last Immigration (Mo/Yr)</th>
<th>Date of Isoniazid Started (Mo/Yr)</th>
<th>Date of Clinic Visit (Mo/Day/Yr)</th>
<th>Date of Overdosage Tablets Taken*</th>
<th>Precipitating Event or Circumstance</th>
<th>Psychiatric Diagnosis</th>
<th>Subsequent Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>23</td>
<td>Cambodian</td>
<td>6/83</td>
<td>. . .</td>
<td>. . .</td>
<td>1/13/84</td>
<td>Argument with husband</td>
<td>Major depression</td>
<td>None</td>
</tr>
<tr>
<td>2</td>
<td>18</td>
<td>Cambodian</td>
<td>12/83</td>
<td>12/83</td>
<td>3/29/84</td>
<td>4/30/84</td>
<td>Handful</td>
<td>Adjustment disorder; depressed mood</td>
<td>Doing well for one year</td>
</tr>
<tr>
<td>3</td>
<td>14</td>
<td>Cambodian</td>
<td>12/84</td>
<td>12/84</td>
<td>12/14/84</td>
<td>2/17/85</td>
<td>Scolding by father</td>
<td>Adjustment disorder; depressed mood</td>
<td>None</td>
</tr>
<tr>
<td>4</td>
<td>22</td>
<td>Vietnamese</td>
<td>3/85</td>
<td>3/85</td>
<td>6/27/85</td>
<td>7/15/85</td>
<td>More than 10</td>
<td>Argument with husband</td>
<td>Doing well for five months</td>
</tr>
<tr>
<td>5</td>
<td>23</td>
<td>Cambodian</td>
<td>3/85</td>
<td>5/85</td>
<td>7/22/85</td>
<td>9/20/85</td>
<td>Unknown</td>
<td>Two month post-partum; marital discord</td>
<td>Relocated to join family after two months</td>
</tr>
<tr>
<td>6</td>
<td>15</td>
<td>Vietnamese</td>
<td>9/84</td>
<td>10/84</td>
<td>10/14/84</td>
<td>10/16/85</td>
<td>Argument with sister</td>
<td>Impulsive gesture</td>
<td>None</td>
</tr>
</tbody>
</table>

*Isoniazid tablets contained 300 mg. Entries in this column represent the most accurate estimates possible based on available information from patients and family members.

Among those three, there have been no additional episodes of drug overdose, even though one patient was erroneously given a prescription for isoniazid upon discharge. Review of records from the Computerized Hospital Abstract Reporting System (CIHARS), maintained by the Washington State Hospital Commission for Western Washington, revealed seven records with a coded discharge diagnosis of isoniazid overdose in 1985. Six of the listings matched birthdate, sex and date of admission, and admitting hospital with the six patients from the present report whose overdose occurred in 1985; the four patients described in Table 1, (patients 3 to 6), and the two nonrefugee cases described in the first paragraph of the results section. The remaining case was also a young woman, an indigenous United States citizen.

## DISCUSSION

According to current United States Public Health Service guidelines, all newly arriving refugees from Southeast Asia should be screened for tuberculosis, with isoniazid preventive therapy indicated for children and young adults with tuberculosis infection without disease and for all patients with inactive tuberculosis. Using these guidelines, for a three-year period from July 1979 to June 1982, 2,795 (23.9 percent) of 11,746 refugees screened upon entry to the United States by Seattle–King County Department of Public Health were started on isoniazid preventive...
Nguyen reported that attempted suicide accounted for 29 (25 percent) of 114 psychiatric referrals of refugees over a five-year period. Furthermore, according to the psychiatric evaluations of patients in the current report, the risk of isoniazid overdosage extends beyond patients who are depressed. Thus, two of the six patients reported here apparently acted simply on impulse following arguments with family members. Similarly, Blanchard et al. reported that most of their overdosages appeared to occur impulsively in response to various psychologic problems. These data indicate that there is much yet to be learned about the complex psychologic reactions associated with resettlement of Southeast Asian refugees in the United States. For example, it has been suggested that in some refugee cultures, suicide represents a personal decision not necessarily pathologic in nature. Accordingly, suicide may be seen as an acceptable solution to a moral dilemma.

Further support for the assertion that young refugee women are at extraordinary risk of intentional isoniazid overdose is provided by the CHARS data noted in the results section. Thus, in 1985, the majority (four of seven) of hospital admissions for isoniazid overdose in Western Washington were patients presented in this report, from the tiny segment of the general population constituted by young refugee women. Depression, presumably related to the severe psychosocial stress of relocation, is the most common mental disorder experienced by refugees from Southeastern Asia, and this serious condition may lead to attempted suicide. Nguyen reported that attempted suicide accounted for 29 (25 percent) of 114 psychiatric referrals of refugees over a five-year period. Furthermore, overdosage was the method of attempted suicide in 24 of those 29 patients. Thus, it is not surprising that isoniazid, which is present in so many refugee homes during the early resettlement period, should be found to be one of the medications associated with suicide attempts among refugees.

Toxicity due to overdosage of isoniazid is a well-described complication of tuberculosis therapy. However, isoniazid overdose is not common. For example, during 1984 and 1985, 33,676 telephone reports of potentially toxic exposures were received by the Seattle Poison Control Center. Isoniazid was named as the agent in only 11 (0.013 percent) of those reports. This study and the recent one from Rochester, Minnesota, indicate that there may be a particular risk of intentional overdosage with isoniazid among Southeast Asian refugee women during the early resettlement period in the United States. An estimate of that risk can be made based on available information. During the two-year period from January 1984 through December 1985, 3,486 refugees from Southeast Asia were screened for tuberculosis at the Seattle-King County Department of Public Health Refugee Screening Clinic. A total of 354 (10.2 percent) of those refugees were women aged 15 to 24 years. It is assumed that approximately 20 percent of those women had reactive tuberculin tests (data on file at the Tuberculosis Control Section, Washington State Department of Social and Health Services), then approximately 71 patients in that age group (20 percent of 354) would have been started on isoniazid preventive therapy. As shown in Table 1, three patients presented in this report (patients 4, 5, and 6) were between the ages 15 and 24 years and were started on isoniazid preventive therapy in 1985. Thus, approximately 4.2 percent (three of 71) of young refugee women who were started on isoniazid during that period of time may have sustained an intentional overdose.

Further support for the assertion that young refugee women are at extraordinary risk of intentional isoniazid overdose is provided by the CHARS data noted in the results section. Thus, in 1985, the majority (four of seven) of hospital admissions for isoniazid overdose in Western Washington were patients presented in this report, from the tiny segment of the general population constituted by young refugee women. Depression, presumably related to the severe psychosocial stress of relocation, is the most common mental disorder experienced by refugees from Southeastern Asia, and this serious condition may lead to attempted suicide. Nguyen reported that attempted suicide accounted for 29 (25 percent) of 114 psychiatric referrals of refugees over a five-year period. Furthermore, overdosage was the method of attempted suicide in 24 of those 29 patients. Thus, it is not surprising that isoniazid, which is present in so many refugee homes during the early resettlement period, should be found to be one of the medications associated with suicide attempts among refugees.

Further support for the assertion that young refugee women are at extraordinary risk of intentional isoniazid overdose is provided by the CHARS data noted in the results section. Thus, in 1985, the majority (four of seven) of hospital admissions for isoniazid overdose in Western Washington were patients presented in this report, from the tiny segment of the general population constituted by young refugee women. Depression, presumably related to the severe psychosocial stress of relocation, is the most common mental disorder experienced by refugees from Southeastern Asia, and this serious condition may lead to attempted suicide. Nguyen reported that attempted suicide accounted for 29 (25 percent) of 114 psychiatric referrals of refugees over a five-year period. Furthermore, overdosage was the method of attempted suicide in 24 of those 29 patients. Thus, it is not surprising that isoniazid, which is present in so many refugee homes during the early resettlement period, should be found to be one of the medications associated with suicide attempts among refugees.

Further support for the assertion that young refugee women are at extraordinary risk of intentional isoniazid overdose is provided by the CHARS data noted in the results section. Thus, in 1985, the majority (four of seven) of hospital admissions for isoniazid overdose in Western Washington were patients presented in this report, from the tiny segment of the general population constituted by young refugee women. Depression, presumably related to the severe psychosocial stress of relocation, is the most common mental disorder experienced by refugees from Southeastern Asia, and this serious condition may lead to attempted suicide. Nguyen reported that attempted suicide accounted for 29 (25 percent) of 114 psychiatric referrals of refugees over a five-year period. Furthermore, overdosage was the method of attempted suicide in 24 of those 29 patients. Thus, it is not surprising that isoniazid, which is present in so many refugee homes during the early resettlement period, should be found to be one of the medications associated with suicide attempts among refugees.

Further support for the assertion that young refugee women are at extraordinary risk of intentional isoniazid overdose is provided by the CHARS data noted in the results section. Thus, in 1985, the majority (four of seven) of hospital admissions for isoniazid overdose in Western Washington were patients presented in this report, from the tiny segment of the general population constituted by young refugee women. Depression, presumably related to the severe psychosocial stress of relocation, is the most common mental disorder experienced by refugees from Southeastern Asia, and this serious condition may lead to attempted suicide. Nguyen reported that attempted suicide accounted for 29 (25 percent) of 114 psychiatric referrals of refugees over a five-year period. Furthermore, overdosage was the method of attempted suicide in 24 of those 29 patients. Thus, it is not surprising that isoniazid, which is present in so many refugee homes during the early resettlement period, should be found to be one of the medications associated with suicide attempts among refugees.

Further support for the assertion that young refugee women are at extraordinary risk of intentional isoniazid overdose is provided by the CHARS data noted in the results section. Thus, in 1985, the majority (four of seven) of hospital admissions for isoniazid overdose in Western Washington were patients presented in this report, from the tiny segment of the general population constituted by young refugee women. Depression, presumably related to the severe psychosocial stress of relocation, is the most common mental disorder experienced by refugees from Southeastern Asia, and this serious condition may lead to attempted suicide. Nguyen reported that attempted suicide accounted for 29 (25 percent) of 114 psychiatric referrals of refugees over a five-year period. Furthermore, overdosage was the method of attempted suicide in 24 of those 29 patients. Thus, it is not surprising that isoniazid, which is present in so many refugee homes during the early resettlement period, should be found to be one of the medications associated with suicide attempts among refugees.

Further support for the assertion that young refugee women are at extraordinary risk of intentional isoniazid overdose is provided by the CHARS data noted in the results section. Thus, in 1985, the majority (four of seven) of hospital admissions for isoniazid overdose in Western Washington were patients presented in this report, from the tiny segment of the general population constituted by young refugee women. Depression, presumably related to the severe psychosocial stress of relocation, is the most common mental disorder experienced by refugees from Southeastern Asia, and this serious condition may lead to attempted suicide. Nguyen reported that attempted suicide accounted for 29 (25 percent) of 114 psychiatric referrals of refugees over a five-year period. Furthermore, overdosage was the method of attempted suicide in 24 of those 29 patients. Thus, it is not surprising that isoniazid, which is present in so many refugee homes during the early resettlement period, should be found to be one of the medications associated with suicide attempts among refugees.

Further support for the assertion that young refugee women are at extraordinary risk of intentional isoniazid overdose is provided by the CHARS data noted in the results section. Thus, in 1985, the majority (four of seven) of hospital admissions for isoniazid overdose in Western Washington were patients presented in this report, from the tiny segment of the general population constituted by young refugee women. Depression, presumably related to the severe psychosocial stress of relocation, is the most common mental disorder experienced by refugees from Southeastern Asia, and this serious condition may lead to attempted suicide. Nguyen reported that attempted suicide accounted for 29 (25 percent) of 114 psychiatric referrals of refugees over a five-year period. Furthermore, overdosage was the method of attempted suicide in 24 of those 29 patients. Thus, it is not surprising that isoniazid, which is present in so many refugee homes during the early resettlement period, should be found to be one of the medications associated with suicide attempts among refugees.
REFERENCES

7. Blanchard PD, Yao JO, McAlpine DE, Hurt RE. Isoniazid overdose in the Cambodian population of Olmstead County, Minnesota. JAMA 1986; 256:3131-33