

# Self-Poisoning: Outcome and Complications in the Community Hospital

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*One hundred sixty cases of self-poisoning of patients aged 15 years and older were treated on the wards of the four community hospitals of Lansing, Michigan, in 1981. Most cases (91 percent) were intentional and represented suicide attempts. The complication rate was 13.8 percent and the overdose-related mortality rate 0.6 percent. Aspiration pneumonia was the most common complication, followed by respiratory failure and seizures. No patient with a level of consciousness stage 0 or 1 in the emergency room had a major overdose-related complication with permanent sequelae, and this group represented 80 percent of the cases. One possible guideline for managing the self-poisoner is level of consciousness in the emergency room.*

The level of consciousness of the self-poisoner in the emergency department may have some predictive value regarding the development of complications. Reports from Britain, Scotland, Norway, and Spain indicate a proportion of unconscious patients between 15 and 87 percent.<sup>1-4</sup> The complication rates in these studies vary from 21.7 to 80 percent with the highest complication rate associated with the highest proportion of comatose patients. A retrospective review of patients hospitalized with self-poisoning in four community hospitals indicated a possible correlation of outcome with the patient's level of consciousness in the emergency department. The results of that review are included in this report.

## METHODS

This study included all patients aged 15 years and older who were discharged from or died in any of the four

Lansing community hospitals between January 1, 1981, and December 31, 1981, with a diagnosis of drug overdose, poisoning, or ingestion or inhalation of toxic agents. The lethality of suicide attempts was determined using criteria outlined by Feinsilver.<sup>5</sup> A complication was defined as an undesirable medical or psychiatric outcome following an overdose. The complication rate was calculated by dividing the number of cases with medical or psychiatric complications by the number of cases of self-poisoning and multiplying by 100. There was no referral bias because all hospitals were included, and all serious cases were treated locally, the closest university hospital being 80 miles away.

Level of consciousness was classified according to a scale similar to that described by Jacobsen et al<sup>2</sup>:

0. Awake

1. Somnolence. The patient is drowsy, but can be kept awake when stimulated or talked to.

2. Stupor. The patient cannot be kept fully awake, but responds to painful stimuli.

3. No contact. The patient may still respond to painful stimuli. Deep tendon reflexes, cough, and corneal reflexes may be present.

4. No response to painful stimuli. Cornea, cough, and deep tendon reflexes are absent. Circulation and respiration are intact.

5. Ventilatory or circulatory failure

Other details have been described previously.<sup>6</sup>

Submitted, revised, June 17, 1986.

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**TABLE 1. SELF-POISONING MEDICAL COMPLICATIONS**

	All Patients No. (%)	Stage 0 and Stage 1 Patients No. (%)
Aspiration pneumonia	10 (25)	1 (2.5)
Respiratory failure	8 (20)	0 (0)
Seizures	5 (12.5)	3 (7.5)
Arrhythmia	4 (10)	0 (0)
Hypotension	2 (5)	0 (0)
Rhabdomyolysis	2 (5)	0 (0)
Death	2 (5)	1 (2.5)
Other*	7 (17.5)	1 (2.5)
Total	40 (100)	6 (15)

\*One case each of pneumothorax, mediastinal hematoma, cellulitis, diabetes insipidus, methemoglobinemia, acute tubular necrosis, and adult respiratory distress syndrome

**RESULTS**

One hundred sixty patients aged 15 years and older were treated on the wards of the Lansing hospitals in 1981 for self-poisoning. There were 145 cases of intentional self-poisoning (suicide attempt) and 15 cases of unintentional self-poisoning. The median age was 27 years and the range was 15 to 74 years. Women outnumbered men by almost two to one, and the most common drugs used were benzodiazepines, followed in order by salicylates, ethanol, and acetaminophen. The mean hospital stay was 4.8 days with a range of 1 to 36 days. The longer hospital stays were due to the prolonged psychiatric inpatient care that some patients required.

The overall complication rate was 13.8 percent, and the most common medical complication was aspiration pneumonia followed in order by respiratory failure, seizures, and arrhythmia (Table 1). Often patients who had one type of undesirable medical outcome also had many others. There were two psychiatric complications in the form of repeat suicide attempts.

Two patients died; one from self-poisoning and the other from metastatic lung cancer. The one overdose-related death resulted in a mortality rate of 0.6 percent.

At the time of the emergency department evaluation, most patients were either stage 0 (51 percent) or stage 1 (29 percent) with respect to level of consciousness (Table 2). The higher stages of coma accounted for a proportionally higher rate of complications (Table 2). The death related to drug overdose occurred in a patient who manifested stage 5 level of consciousness at presentation.

The medical complications that occurred in stages 0 and 1 were either obvious at the time of admission,

preventable, unrelated to the ingestion, or without identifiable sequelae. These complications included three seizures (one patient had a seizure disorder, another had a seizure in the emergency department, none had sequelae), one death unrelated to overdose but due to metastatic cancer of the lung, one aspiration pneumonia (the patient was inappropriately given ipecac after ingestion of a hydrocarbon), and one acute tubular necrosis (the patient waited two days after the overdose before seeking medical care and was hypovolemic as a result of protracted nausea and vomiting). The two psychiatric complications of repeat suicide attempts occurred in patients who presented to the emergency department with stage 0 level of consciousness. Both of these patients had made potentially lethal first attempts.

**DISCUSSION**

Suicide attempts, especially by drug overdose, are increasing and represent a major health problem.<sup>7-16</sup> Most self-poisonings were done by young adults who made suicide gestures of low intent. In these cases outcomes were excellent.

As expected, the most common complication was respiratory. Other investigators reported that aspiration pneumonia and respiratory failure headed their list of undesirable developments.<sup>1,2,17,18</sup> Aspiration is a common problem in the unconscious patient and may contribute to the apparent inverse association of conscious state with the development of complications.

Eighty percent of the patients studied, the majority of self-poisoners hospitalized, experienced stage 0 and stage 1 levels of consciousness. According to outcome, many of them may have done equally well without hospitalization. Some could have been treated in a holding room or sent home. However, prior to discharging any self-poisoner from the emergency department, the physician should ensure that a safe, supportive environment is available to each patient.

Experience indicated that a major factor associated with the outcome and complications of the self-poisoner in the community hospital was the level of consciousness in the emergency department. If the patient was awake or somnolent, the prognosis was excellent, and levels of care with less intensity may have sufficed. In using level of consciousness as a guideline, the time delay between ingestion and arrival in the emergency department should be considered, since with short delays there is more risk that alert patients will become comatose following the initial evaluation. This study was retrospective, and these time intervals were often absent from the charts, but no alert or somnolent patient developed deep coma after emergency department presentation.



TABLE 2. LEVEL OF CONSCIOUSNESS IN EMERGENCY DEPARTMENT COMPARED WITH OUTCOME

	Stage 0 No. (%)	Stage 1 No. (%)	Stage 2 No. (%)	Stage 3 No. (%)	Stage 4 No. (%)	Stage 5 No. (%)
Number of cases	81 (51)	47 (29.1)	23 (14.2)	5 (3.3)	1 (0.6)	3 (1.8)
Complications	5 (6.2)	3 (6.4)	10 (43.5)	2 (40)	1 (100)	1 (33)
Death	1 (1.2)	0 (0)	0 (0)	0 (0)	0 (0)	1 (33)

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