Hong Kong Journal of Emergency Medicine

Patient behaviour on non-accidental poisoning - a prospective study

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Poisoning or drug overdose is a common presentation to the Accident and Emergency Departments (AED) in Hong Kong. This prospective study examined 74 patients with intentional poisoning attending an Accident and Emergency department over a 3 month-period. A pre-set questionnaire was designed seeking the following information: demographic characteristics, patient behaviour, the source of ingestants, patient's knowledge about the ingestants, home interventions, medical and psychiatric history, and final outcomes. The incidence of intentional poisoning was 0.16%. Most were female in 21-40 years age group, single, had a job and had secondary level education. They were usually healthy and had no psychiatric illness. Drugs (mostly hypnotic/sedatives) and household products made up most of the ingestants. The 'Sleep-On', 'Sleep-Qik', and 'Honslin' were the most common hypnotic/sedative. These ingestants were chosen largely because of their easy accessibility rather than the toxicity. The majority presented within 2 hours of ingestion although with an initial attempt to die, paradoxically they did not believe that they would die from the overdose. Most events occurred at patient's own home. Emotional, family and marital problems constituted the vast majority of the precipitating factors. About 40% of patients ingested more than one substance (alcohol being the most common co-ingestant) or had an concurrent acting-out behaviour. Although most patients knew the nature of the ingestant, very few (less than 15%) understood its side-effects or their contraindications. There was no mortality or significant morbidity. Over 60% did not have any psychiatric disorder after psychiatric assessment. Knowledge of pattern of poisonings and patient behaviour in local setting is important in terms of prevention, public education and the provision of the optimal care to these patients. (*Hong Kong j. emerg.med.* 2000;7:65-72)

Keywords: Poisoning, Hong Kong, non-accidental, prospective, behaviour

Introduction

Poisoning remains a common reason for attending the Accident and Emergency department (AED) in Hong Kong. In 1994, injury and poisoning was reported to be the 5th leading cause of death at all ages.[1] Yet the contribution from intentional poisoning was unknown. Local experience suggests that in most cases the poisoning is mild and the mortality is low. However, depending on the scope of the problem as it presents to the health facilities, the impact on the health care resources can be significant. Unfortunately, local data on this subject is scarce. Retrospective study on epidemiology lacks information on patient behaviour[2] and the only prospective study was done 6 years ago.[3] With the massive immigration and emigration in recent years, change in population structure may have occurred. A more updated and more complete information may cast some new insight into this problem and therefore have important implications on prevention and public education. The purpose of this study is to prospectively study the behaviour of patients presenting to the AED of Prince of Wales Hospital because of intentional poisoning.

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Method

During the period of December 1994 to February 1995, a total of 100 patients presenting to the AED of Prince of Wales Hospital with poisoning were

studied. Cases of homicidal or by proxy poisoning were excluded. A standardised pre-set questionnaire was used for each patient. The form was completed by the in-charge medical officer after essential resuscitation and stabilisation. Due to practical reasons, only some information could be gathered in the emergency setting. The rest of questionnaire was completed later, mostly after admission. To ensure the reliability of the data in the questionnaire, all the hospital notes of the admitted patients were searched and checked for any inconsistencies and errors.

Results

A total of 100 patients were studied, of which 74 patients (74%) were of intentional (non-accidental) poisoning and rest were of accidental poisoning. Over the same period, the attendance to the A&E Department was 45,607, with an incidence of intentional poisoning of 0.16%. The results for intentional poisoning were analysed according to the following categories:

1. Demographic characteristics
2. Characteristic of the poisoning act
3. Source of the poison
4. Patient's knowledge about the ingestant
5. Home interventions
6. Patient's medical and psychiatric history
7. Final outcomes

1. Demographic characteristics

The age and sex distribution of these patients were shown in Figure 1. Most of patients were in the range of 21-40 years of age (64%) and of female sex (70%). The mean age for male and female were 24 and 30 respectively.

The marital status, the occupational status, and the education level of these patients are shown in Table 1. Most patients were single, had a job and secondary level education. Though the sample size is too small to be statistically analysed, it can be seen that for male patients, most (81.8%) were single, whereas for the female patients 50% were married.

2. Characteristic of the poisoning act

Majority presented to AED within 2 hours of the act (65%). (Figure 2) There was no association between sex and the time of occurrence of poisoning before attending AED.

About 86% of patients with intentional act did so in an attempt to die. Other causes for the remaining 14% include: attention seeking after quarrel with friend of opposite sex, feeling bored, emotional upset, insomnia, protest against family, to abort the fetus, to scare husband who wanted divorce, and substance abuse.

The various causes of intentional act in those

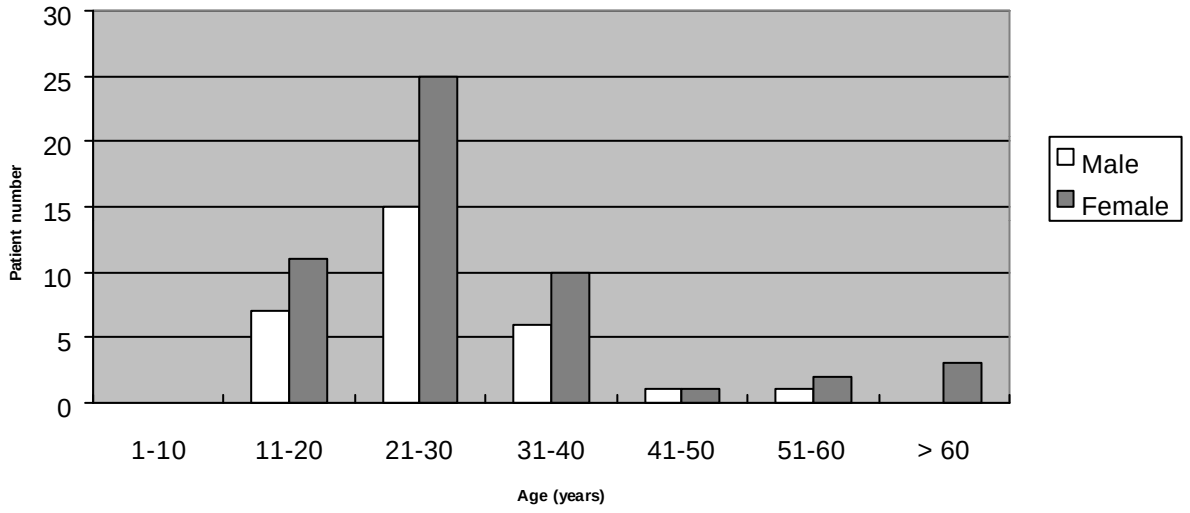

Figure 1. Age and sex distribution of poisoned patients.

Table 1. Marital status, occupational status and education level of the patients.

	Male	Female	Total
Marital status			
single	18	19	37 (50%)
married	3	23	26 (35%)
divorced	1	4	5 (7%)
widow/widower	0	2	2 (3%)
co-habitation	0	4	4 (5%)
Occupation			
employed	9	25	34 (46%)
unemployed	9	9	18 (24%)
housewife	0	14	14 (19%)
student	4	4	8 (11%)
Education level			
primary or less	5	15	20 (27%)
secondary	17	35	52 (70%)
university	0	2	2 (3%)
post-graduate	0	0	0 (0%)

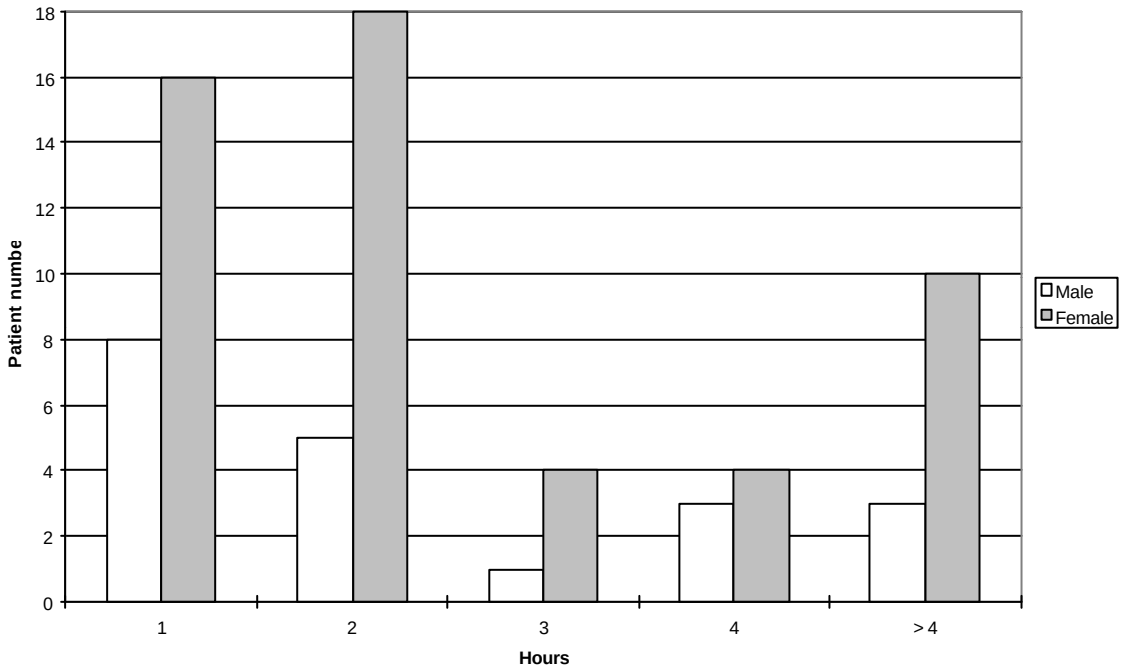

Figure 2. Distribution of time of poisoning.

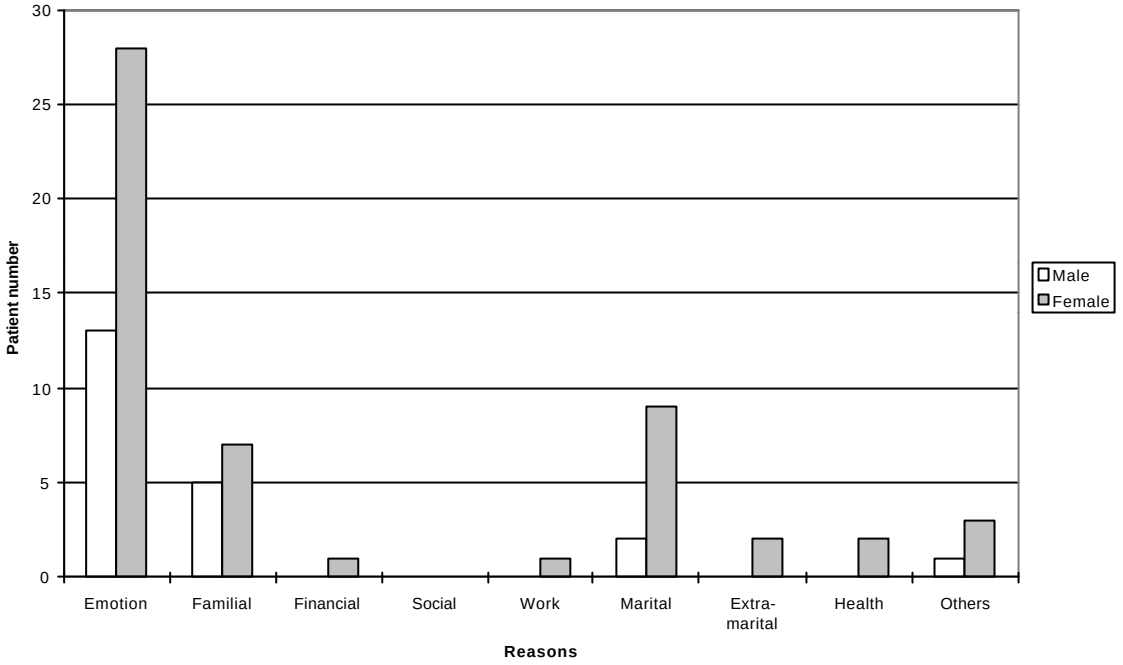

Figure 3. Distribution of reasons for intentianl poisoning.

attempting suicide were shown in Figure 3. Emotional problems, family problems and marital problems were the three most common causes (73% altogether).

Most intentional poisonings occurred at patient's own home (85%).

The nature of the majority of poisons was known (84%). Most of these poisons were drugs (72%). Thirty eight percents of the patient with intentional poisonings ingested more than one substances or did other things in addition to ingestion. There is marginally significant association between sex of the patient and the number of ingestants ($p=0.05$): female tends to ingest more ingestant than male. The various ingestants involved for intentional poisoning were shown in Table 2. Hypnotic/sedative was the most common ingestant involved (40%). Three patients (4%) had concomitant bodily harm.

As regards to the most common ingestant, the hypnotic/sedative group, there are several observations:

1. The exact nature was known in only half of the cases. (53%)
2. The drug could be bought from dispensary without prescription in 50% of cases, among which the 3 most common drugs were 'Sleep-On', 'Sleep-Qik' and 'Honslin'.

Table 2. Nature of substances ingested or concurrent act

Ingestants/concurrent act	
Hypnotic/sedative	30 (40%)
Analgesic	17 (23%)
Antiseptic	15 (20%)
Alcohol	12 (16%)
Detergent	3 (4%)
Antidepressant	2 (3%)
Antihistamine	2 (3%)
Antipsychotic	2 (3%)
Psychiatric drug of uncertain nature	2 (3%)
Antispasmodic	1 (1 %)
Cough mixture	1 (1%)
Insecticide	1 (1%)
Rodenticide	1 (1%)
Thinner	1 (1%)
Weight reducing drug	1 (1%)

3. The source of the poison

In most cases the implicated or suspected poisons belonged to the patient (84%), although in majority (63%) they were not deliberately bought for this purpose and in 76% the ingestant was not a regular medication of the patient. The various sources of the poisons are shown in Figure 4. Most commonly the implicated poisons were from the drugstores (46%). Majority (72%) of the patients could obtain the drug without doctor's prescription.

4. Knowledge about the poison

Most patients (90%) knew the indication of the drug but only 65% knew the recommended dosage and even less knew the side effects (13%) or the contra-indication (15%) of the drug.

About one-third (34%) ingested two or more substances or did something else concurrently with the ingestion act. For those who ingested more than one substances, alcohol was the most common co-ingestant (64%).

Of the various reasons for ingesting the particular substance(s), easy accessibility of the drug remained the most common reason for their choice (83%). Only 3% made their choice because they thought the substance was toxic. The rest chose it because of their own past experience, others' past experience, knowledge from media and other reasons.

5. Home interventions

Thirteen percents had interventions after the incident before arriving at the AED, among which induced emesis by pharyngeal stimulation was most common (60%), followed by drinking water (40%).

The triage categories on attending AED were shown in Figure 5. On initial assessment, the vital signs were stable in 84% of patients, and most of the patients were alert on presentation (76%).

6. Medical or psychiatric history

Majority of patients were previously healthy and had no psychiatric illness. Known psychiatric illness or significant past health existed in 19% and 14% respectively. About one-fourth of patients (27%) had one or more suicidal attempt in the past. No significant difference existed between the sexes in terms of presence of previous suicidal attempt.

Very few (5%) patients had a history of substance abuse and the substances being cough mixtures and hypnotics.

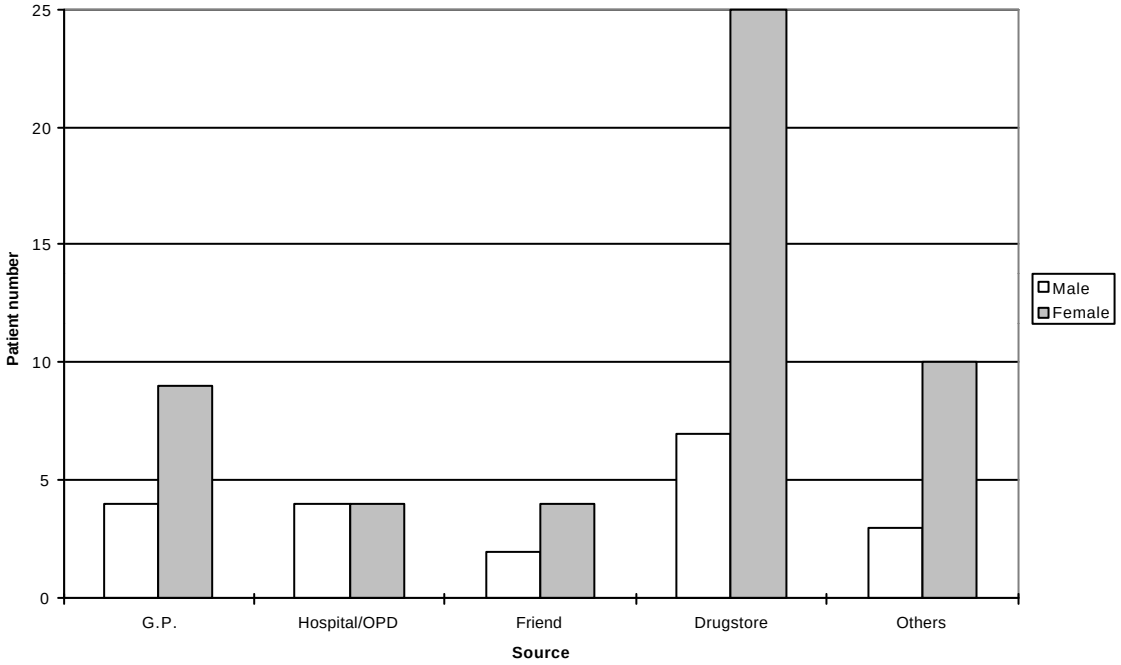

Figure 4. Distribution of sources of poisons.

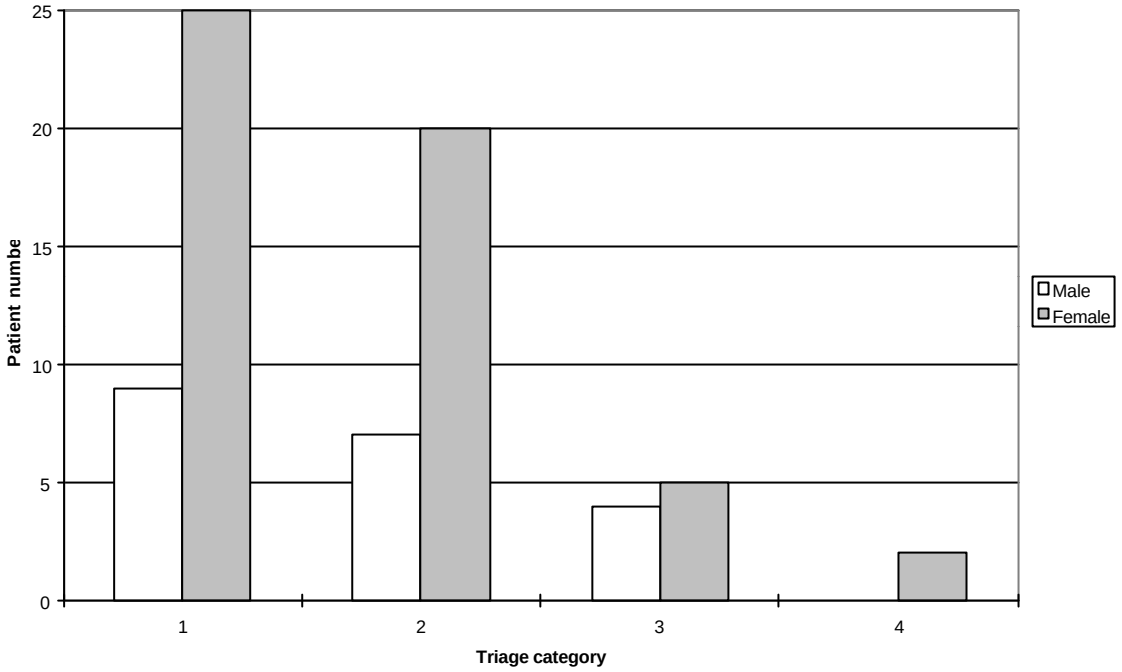

Figure 5. Distribution of triage category on presentation.

Twenty-nine (39%) had a psychiatric diagnosis on discharge, of which the most common is adjustment disorder (Table 3). There was no significant sex difference on the incidence of psychiatric illness.

7. Final outcome of patients

All patients were discharged from the hospital alive without residual harmful effects, of which about one-fourth discharged themselves against advice (28%). No complications were detected on phone follow-up 3 days later. During hospitalisation, 8 patients had some complications directly or indirectly related to the poisoning, all of which responded well to treatment. These were metabolic acidosis, bradycardia, respiratory depression, gastritis with gastrointestinal bleeding, hepatitis, Pott's fracture, sinus tachycardia, and hypokalaemia.

For those requiring admission, the number of days of hospitalisation was shown in Figure 6.

On interview, eighteen percents of patients replied that their problems leading to the act had been solved. Forty five percents felt that their problems were not solved and the rest were uncertain in their answers.

At the time of poisoning, only 35% of patients thought that they would die from the poisoning. The rest did not believe that they would die from the act.

Table 3. Psychiatric diagnosis of patients with intentional poisoning.

	Male	Female	Total
Adjustment disorder	5	9	14 (19%)
Dysthymia	0	2	2 (3%)
Depression	1	5	6 (8%)
Drug-induced psychosis	1	0	1 (1%)
Personality disorder	0	2	2 (3%)
Schizophrenia	2	1	3 (4%)
Substance abuse	1	0	1 (1%)

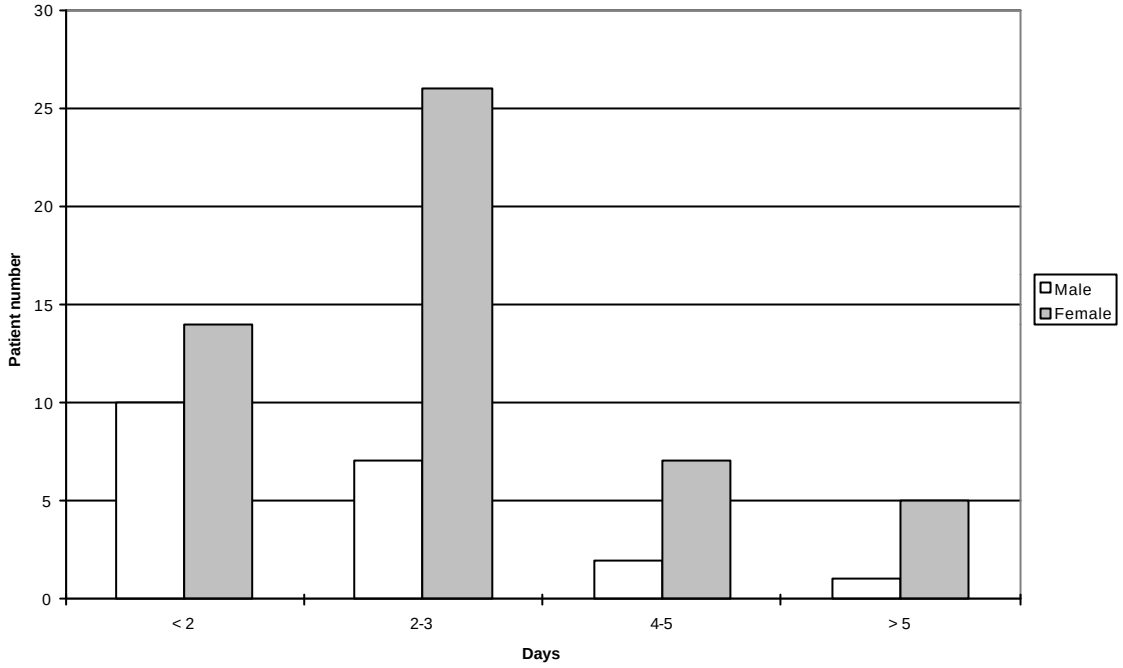

Figure 6. Distribution of days of hospitalization.

Discussion

Compared with the previous studies and literature,[2-5] the following findings have not changed, there was a female predominance; majority were of the younger age group; most were single; thus these are the high risk groups. Drugs and household products made up most ingestants. Again the common causes for intentional act were similar and they were mostly situational. No serious complications occurred. Nevertheless, there were new findings as shown below.

Majority of patients presented within 2 hours post-ingestion. An early presentation like this allows effective decontamination, if indicated, to be performed. And this may well contribute to the low mortality and morbidity of these poisoned patients. Not all intentionally ingested poisons to kill themselves. Such gesture for various purposes is worrying and dangerous as these poisons may be potentially lethal. More public education should be instituted on this aspect.

Thirty eight percents of the patient with intentional poisonings ingested more than one substances or perform other acts in addition to ingestion. This is in contrast with the study by Lau et al that majority of patients had taken a single drug (97%).[6] Half of the hypnotic / sedative can be obtained from drugstores without prescription. The three most commonly implicated were ‘Sleep-On’, ‘Sleep-Qik’ and ‘Honslin’ (tradenames). They contain either (as labelled to be) herbal medicines or anti-histamine. As the local government has imposed stringent legislation to control the use of benzodiazepines, the use of these hypnotics is expected to gain popularity. Although none of our patients taking either of these died or had serious complications, their safety cannot be ensured if large quantities were ingested. With the widely held belief in the local public that people would die peacefully if they take hypnotic, such method of deliberate self-poisoning will continue. Legislation to control the sale of such over the counter (OTC) ‘hypnotic’ should be considered.

The knowledge about the ingestants was generally poor. Apart from knowing the indication in brief term, the side effects and the contraindications were poorly understood. This may reflect the general lack of emphasis by the medical profession on these two important aspects.

One quarter of patients had the experience of previous suicidal attempt, less than in the study by McGrath in Australia, where half of cases have had previous suicidal attempt.[4] The reason of repeating the attempt, which was known to be unsuccessful, was intriguing and this may reflect more of a gesture than real intention to die. This is further substantiated by the observation that majority of patients did not believe they would die with such act.

Forty percents of patients were labelled with a psychiatric diagnosis on discharge, comparable to a western study.[4] Again the most common was adjustment disorder.

Poisoning is a common presentation to the Accident and Emergency department. Although the medical management is straightforward in most cases, its impact on the healthcare service is significant. Even though serious cases of poisoning can be well managed with the advance of modern medicine, and the outcome of intentional poisoning was generally benign, the psychosocial aspect of poisoning should not be overlooked. In fact, the underlying psychosocial problems were solved in less than one-fifth of cases. More channels for help and counselling should be offered to the high-risk groups.

The pattern of poisoning often changes with time. It is worthwhile to perform regular study on the pattern of intentional poisoning so that better planning can be facilitated in the care of these patients.

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