

¹ Département de médecine communautaire, Division de médecine pénitentiaire, Hôpitaux Universitaires de Genève

² Policlinique de médecine, Hôpitaux Universitaires de Genève

Prescription of hypnotics and tranquilisers at the Geneva prison's outpatient service in comparison to an urban outpatient medical service

Summary

Objectives: Examine whether an overconsumption of tranquilisers exists in prison and discuss possible reasons.

Methods: Comparative study during three weeks at Geneva: prison outpatient service and Medical Policlinic (MP) of the University Hospital.

Results: When comparing the 113 (prison) and 151 (MP) male patients younger than 39 years, we found important differences concerning the quality and quantity of prescriptions of psychoactive drugs: ten times more prison patients than patients from the MP were treated with benzodiazepines (BZD). The differences persisted even when considering only prisoners who were not known to be street drug, alcohol or long time BZD consumers.

Conclusions: The differences cannot be explained by the high percentage of drug addicts in prison. Our results suggest the importance of factors related to the prison environment.

Keywords: Médecine pénitentiaire – Tranquillisant – Soporifique.

Prescription of hypnotics and sedatives in a prison raises questions (Bernheim 1991; Eichenberger 1978). Does it play the same role as in urban ambulatory care services? Is it the continuation of chronic therapy or initiation of new treatments resulting from being in prison? Are hypnotics and sedatives used to increase the social control over the prisoners (Vaughn 1997)? It has been alleged that prisoners overconsume hypnotics and sedatives (Jaeger & Monceau 1996). There are very few studies on drug prescriptions in a prison (Jaeger & Monceau 1996; Zimmermann & von

Allmen 1985; Sommers & Baskin 1991; Demoures et al. 1998; Baillargeon et al. 2001; Harding 1984), probably because of methodological and practical issues (Jaeger & Monceau 1996; Martin 1984).

We conducted the present study to establish whether prescription of hypnotics and sedatives is higher in prison than in an ambulatory care service of the population living in the same geographical area. In case of overprescription, our objective was to determine whether it could be explained by a higher prevalence of toxic dependence in jail, by conditions resulting from being a prisoner such as anxiety and sleeping problems or by administrative pressure to calm the prisoners.

Methods

Champ-Dollon is the remand prison in the Canton of Geneva, Switzerland, and has 300 to 400 captives. Its medical service works as a primary care clinic, comprising nurses, psychologists, and physicians from different specialities. At the time of the study, two medical residents, who were supervised by a senior physician, and one psychiatrist were almost exclusively in charge of prescription.

The University Hospitals of Geneva have an ambulatory care unit of general internal medicine (medical policlinic, MP). The patient population of the MP comprises a large number of poor and migrant persons. In 1997, 18 medical residents, who were supervised by several senior physicians, were in charge of prescriptions at the MP (Antonini et al. 1999).

From 14 May to 6 June, 1997, the medical residents from the prison and the MP filled out an anonymous (prison) or nominal (MP) form for all patients seen on consultation, indicating all drugs prescribed or renewed at the consultation, as well as the diagnosis, trademark, treatment duration,

dose, and quantity prescribed. Drugs were classified and coded according to the WHO classification (1997). The French version of the International Classification of Disease, 10th Revision (CIM-10) was used for the coding of diagnoses.

Statistical analyses

Data from the prison and the MP have first been analysed separately. Because of the differences in age and sex of the patient samples, we compared only subgroups comprising all male patients who were less than 39 years old. Statistical analysis was done using SPSS, version 9.0 for Windows.

Results

Patient characteristics

The characteristics of MP patients and the prescriptions to the whole MP sample have been described elsewhere (Antonini et al. 1999).

At the prison, in three weeks, 179 patients (of which 10 were followed by the psychiatrist) consulted 269 times (of which 29 with the psychiatrist). For patients with multiple visits, prescription profile was similar at the first and at later visits. The following analyses are restricted to the first medical visit (see Tab. 1).

354 medications were prescribed during the 179 first medical visits. Psychotropic drugs (n = 164, 46.3%) included 44 (12.4%) hypnotics (zolpidem and benzodiazepines: 7.6%; chloral hydrate: 4.8%); 53 (15%) anxiolytic benzodiazepines; 21 (5.9%) clonazepam prescriptions (used for

treating dependence on benzodiazepines in toxicomaniacs); 18 (5.1%) neuroleptics; 5 (1.4%) antidepressors; and 23 (6.5%) methadone prescriptions.

Prescription rates for men and women were, respectively, 22.3% and 31.8% for hypnotics; 41.4% and 40.9% for other benzodiazepines (p>0.3); and 56% and 77.3% for psychotropic drugs (p = 0.06).

14% of all hypnotics and 34.3% of all anxiolytic benzodiazepines were prescribed to patients seen on consultation in the three days following admission to the prison. The corresponding proportions are 75% and 71% prescribed to patients seen on consultation within the two months following admission to the prison. Most (90%) of the hypnotics and anxiolytic benzodiazepines prescribed to patients seen on consultation within their first three days in prison were characterised by the residents as being new treatments.

One of the two residents prescribed more often drugs for anxiety than the other (25.5% vs. 12.3%, p = 0.02), otherwise, the prescription profile of the two residents was similar.

Differences between the prison and the ambulatory care clinic

Comparisons were limited to male patients, less than 39 years old (113 of the 179 patients of the prison and 151 of the 701 of the MP). There were no statistically significant differences between the two groups in terms of age (mean = 28 years) and nationality (about 1/3 was Swiss, 1/3 was European and 1/3 non-European, p = 0.6).

Table 1 Characteristics of patients seen on consultation at Geneva's prison outpatient service (n = 179) and at the urban medical policlinic (MP, n = 701) and drugs prescribed to these patients. Geneva, Switzerland, May 14 to June 6, 1997

Sociodemographic variables:	Prison policlinic	MP
Mean age (standard deviation)	34 (11.5)	44.4 (17.9)
Number of women	22 (12%)	344 (49%)
Number of patients seen on consultation > 1 time:	54 (30%)	NIA ^b
2 times:	30 (16.8%)	NIA ^b
3 times:	19 (10.6%)	NIA ^b
> 3 times:	5 (2.8%)	NIA ^b
Patients with Swiss nationality	41 (23%)	273 (39%)
Patients with French nationality	33 (18.4%)	23 (3.3%)
Patients with Italian nationality	14 (8%)	45 (6.4%)
Other nationalities	82 (50%)	294 (42%)
Duration of imprisonment (median) at the first consultation:	37 days	not applicable
Number of patients seen on consultation (1st consultation):		
on the day of imprisonment or the day after	37 (20.4%)	not applicable
between the 3 rd and the 30 th day of imprisonment	45 (25%)	not applicable
between the 31 st and the 90 th day of imprisonment	57 (32%)	not applicable
after 90 days of imprisonment	40 (22%)	not applicable
Use of illicit drugs:		
Not mentioned in the medical record	120 (67%)	NIA ^b
Users of IV heroin or cocaine	32 (17.9%)	NIA ^b
Non IV drug abuse (alcohol, BZD ^a , LSD, opiates, cocaine)	27 (15.1%)	NIA ^b

Table 1 (continued)

Types of prescriptions:		
Mean of drugs prescribed per patient (standard deviation)	1.88 (1.4)	2.08 (1.8)
Number of patients having received a prescription :		
of one drug (psychotropic or other drug)	69 (38.5%)	208 (29.7%)
of two drugs (psychotropic or other drug)	45 (25.1%)	164 (23.4%)
of > 2 drugs (psychotropic or other drug)	47 (26.3%)	218 (31%)
of a psychotropic drug	105 (58.8%)	95 (13.6%)
one psychotropic drug	54 (30.2%)	74 (10.6%)
two psychotropic drugs	44 (24.6%)	19 (2.7%)
three or four psychotropic drugs	7 (4%)	2 (0.2%)
for the diagnosis "insomnia"	42 (23.5%)	29 (4.1%)
of a benzodiazepine for other reasons than insomnia:	53 (29.6%)	38 (5.4%)
especially for the diagnosis "anxiety":	35 (19.6%)	38 (5.4%)
of methadone divided in	23 (12.8%)	2 (0.3%)
1) maintenance treatment:	13 (7.3%)	NIA ^b
2) weaning (during about one week):	10 (5.6%)	NIA ^b
for the diagnosis "depression"	8 (4.5%)	22 (3.1%)
drug from the class of antidepressors ^a	5 (2.8%)	40 (5.7%)
drug from the class of neuroleptics ^a	14 (7.8%)	7 (1%)
Prescriptions and duration of imprisonment		
Patients receiving a BZD:		
among non-drug addict patients in prison for < 3 months	33 (49%) ^c	not applicable
among non-drug addict patients in prison for > 3 months	10 (24.4%) ^c	not applicable

^a WHO classification 1997; ^b NIA = no information available; ^c p = 0.01.

Table 2 Percent of male patients (age <39, no illicit drug users*) at the urban medical policlinic (MP) and at Geneva's prison outpatient service, receiving hypnotics or anxiolytic benzodiazepines. Geneva, Switzerland, May 14 to June 6, 1997

Type of drug	Prison (n _{total} = 66)	MP (n _{total} = 149)	p (Chi ² test)
Prescription for insomnia**	18 (27.3%)	3 (2.0%)	< 0.001
Hypnotic***	17 (25.8%)	6 (4.0%)	< 0.001
Anxiolytic BZD****	18 (27.3%)	5 (3.4%)	< 0.001
BZD (total)	24 (36.4%)	8 (5.4%)	< 0.001
Psychotropic drug	28 (42.4%)	15 (10.0%)	< 0.001
Hypnotic or anxiolytic BZD	25 (37.9%)	9 (6.0%)	< 0.001
Prescription for anxiety*****	15 (22.7%)	7 (4.7%)	< 0.001
Neuroleptic drug	5 (7.6%)	1 (0.7%)	0.005

* Self-reported prior or present use (IV or PO) of heroine, cocaine, LSD or alcohol/benzodiazepine addiction.

** The physician indicated the diagnosis "sleep disorder" or "insomnia".

*** Chloral hydrate, zolpidem, hypnotic BZD according to the WHO classification (1997).

**** Anxiolytic BZD according to the WHO classification (1997).

***** The physician indicated the diagnosis "anxiety disorder", "anxiety" or "panic disorder" being the reason for the prescription.

First, we describe the results concerning the entire subgroups, and later (Tab. 2) we compare subgroups including only patients not known to be drug addicts.

In average, drug prescription was slightly more common at the prison (1.64 prescriptions per patient) compared to the MP (1.36, p = 0.05). Prescription of psychotropic drugs was five times more common at the prison (0.86 psychotropic drug per patient) than at the MP (0.15, p < 0.001). About 10 times more prison patients (48%) than patients from the MP (5%) were treated with benzodiazepines. Anxiolytic benzodiazepines (aB) were prescribed to 29% and hypnotics (H) to 23% of patients from the prison, compared to 3% (aB) and 4% (H) of MP patients (p < 0.001). This adds up to a total of 49.6% of prisoner patients receiving either

hypnotics (chloral hydrate, zolpidem, benzodiazepines) or other benzodiazepines, compared to 6% of MP patients (p < 0.001). On the contrary, prescription of antidepressors was more common among MP (6%) than prisoner patients (0% in the subgroup of patients younger than 39 years). No information was available on illicit drug consumption by patients of the medical policlinic, but two of the latter patients took methadone (1.3%). In prison, 24 (21.2%) patients were IV drug users (IVaddicts), of whom 2/3 received methadone. The medical records of 16 other prisoner patients indicated use of illicit drugs other than cannabis (heroine, cocaine, LSD, alcohol, benzodiazepines: ALLaddicts). The mean age of the three groups IVaddicts, ALLaddicts and NONaddicts was not significantly different (27

years). IVaddicts received more prescriptions (number of all drugs prescribed, abbreviated ND = 2.5) and more psychotropic drugs (number of psychotropic drugs, abbreviated NP = 1.6) than ALLaddicts (ND = 1.5; NP = 0.9) and NONaddicts (ND = 1.4; NP = 0.6; $p < 0.01$). More IVaddicts (75%) and ALLaddicts (62.5%) than NONaddicts (36.4%; $p = 0.003$, Pearson's $\chi^2 = 11.9$) received benzodiazepine prescriptions. Differences are not significant or even inverse concerning neuroleptics (7.6% of NONaddicts; 5% of IVaddicts/ALLaddicts) and hypnotics (25.8% of NONaddicts, 20% of IVaddicts/ALLaddicts).

When the MP patients were compared to the non-drug-addict prisoners, major differences in psychotropic drug prescription persisted (Tab. 2).

The reported duration of hypnotic and other benzodiazepine prescriptions at the MP and the prison was similar: about 1/3 of these treatments was prescribed for more than three weeks. At the MP, all psychotropic drugs were prescribed as tablets. In prison, all hypnotics and 80% of benzodiazepines were prescribed as tablets dissolved in water (benzodiazepines, zolpidem) or syrup (chloral hydrate). The doses of psychotropic drugs prescribed at the MP and in prison were similar, typically 15 mg of flurazepam or 10 mg of zolpidem daily.

Discussion

Psychotropic drugs represent about half of medical prescriptions in this prison ambulatory care unit, mostly anxiolytics and hypnotics. This is more than usually observed in ambulatory care clinics for the population at large in Europe (between 14% and 24%) (Joukamaa et al. 1995; Mata et al. 1990; Bellantuono et al. 1989; Fiorio et al. 1989).

When comparing with the drug prescription of the medical policlinic of Canton Geneva, there were major differences with respect to psychotropic drug prescription. Non-prisoners received more antidepressant treatment whereas prisoners received about 10 times more hypnotics and anxiolytics.

Differences persisted when the comparison was limited to patients who were not defined as drug addicts. Nevertheless, the real proportion of drug addiction among prisoners may be larger than what can be determined on the basis of patient report and clinical signs at admission. However, this is unlikely in our (Zimmermann & Allmen 1985) and other's experience (McElrath 1994). Also, underprescription of antidepressant drugs may result from physicians fearing potential overdose among prisoners.

There were no major differences in the characteristics of the physicians who prescribed in prison or in the MP. One of the two residents belongs to the MP and was performing a six-month rotation at the prison.

The sum of the evidence indicates that factors related to becoming a prisoner are the most likely to explain the prescription differences between the prison and the medical policlinic: 1) hypnotics and anxiolytics were prescribed mainly for anxiety and sleeping trouble; 2) most of these prescriptions were new treatments; 3) prescription of benzodiazepines in non-toxicomaniac patients decreased after three months in jail.

Among prison related factors, those due to situation related distress (Harding & Zimmermann 1989) and conditions of detention (Andersen et al. 2000), such as lack of physical activity; noise of roommates and guardians; and boredom (Jaeger & Monceau 1996; Levin & Brown 1975) have been discussed.

Acknowledgements

We thank Prof. T.W. Harding and Prof. H. Stalder for their support.

Zusammenfassung

Die Verschreibung von Schlaf- und Beruhigungsmitteln an der Poliklinik des Genfer Gefängnisses im Vergleich mit der Genfer Medizinischen Poliklinik

Fragestellung: Überprüfung der Annahme einer übermässigen Einnahme von Beruhigungsmitteln im Gefängnis und Diskussion möglicher Gründe.

Methoden: Vergleichende Studie während drei Wochen in Genf an der Gefängnispoliklinik und der medizinischen Poliklinik des Kantonsspitals (MP).

Ergebnisse: Der Vergleich der 113 (Gefängnis) und 151 (MP) Patienten im Alter unter 39 Jahren zeigt grosse Unterschiede bezüglich Qualität und Quantität der verschriebenen Psychopharmaka (zehnmal mehr inhaftierte als nichtinhaftierte Patienten werden mit Benzodiazepinen behandelt). Die Unterschiede bleiben, selbst wenn man drogenabhängige Gefängnispatienten nicht miteinbezieht.

Schlussfolgerungen: Die Unterschiede können nicht auf den erhöhten Anteil drogenabhängiger im Gefängnis zurückgeführt werden. Sie deuten auf die Wichtigkeit mit der Inhaftierung zusammenhängender Gründe hin.

Résumé

Comparaison de la prescription de somnifères et de tranquillisants à la policlinique de la prison préventive de Genève avec celle d'une policlinique cantonale urbaine de médecine

Objectifs: Examiner s'il existe une surconsommation de tranquillisants en prison et en discuter les raisons.

Méthodes: Etude comparative pendant trois semaines à Genève: service médical de la prison et Policlinique de Médecine (MP) de l'Hôpital Cantonal.

Résultats: La comparaison des 113 (prison) et 151 (MP) hommes de moins de 39 ans montre de grandes différences de quantité et de qualité de psychotropes prescrits (dix fois plus de patients prisonniers que de patients en liberté sont traités par des benzodiazepines). Les différences persistent même si l'on ne considère que les patients non-toxicomanes à la prison.

Conclusions: Les différences de prescriptions de psychotropes ne peuvent pas être attribuées au pourcentage élevé de toxicomanes à la prison. Elles suggèrent que des facteurs liés à l'emprisonnement peuvent aussi jouer un rôle.

References

- Andersen HS, Sestoft D, Lillebaek T, Gabrielsen G, Hemmingsen R, Kramp P (2000). A longitudinal study of prisoners on remand: psychiatric prevalence, incidence and psychopathology in solitary vs. non-solitary confinement. *Acta Psychiatr Scand* 102: 19–25.
- Antonini Revaz S, Morabia A, Goehring C, Stalder H (1999). Evaluation de la prescription médicamenteuse de la policlinique de médecine de Genève en 1997. *Schweiz Med Wochenschr* 129: 1935–7.
- Baillargeon J, Black SA, Contreras S, Grady J, Pulvino J (2001). Anti-depressant prescribing patterns for prison inmates with depressive disorders. *J Affect Disord* 63: 225–31.
- Bellantuono C, Arreghini E, Adami M, Bodini F, Gastaldo M, Micciolo R (1989). Psychotropic drug prescription in Italy. A survey in general practice. *Soc Psychiatry Psychiatr Epidemiol* 24: 212–8.
- Bernheim J (1991). Ethische Probleme ärztlicher Tätigkeit im Strafvollzug. *Schweiz Z Strafrecht* 108: 1–15.
- Demoures B, Nkodo-Nkodo E, Mbam-Mbam L (1998). Les soins de santé primaires en milieu carcéral: à propos d'une expérience camerounaise. *Santé* 8: 212–6.
- Eichenberger G (1978). Les médicaments en prison préventive. *Der Strafvollzug in der Schweiz*. 2: 81–92.
- Fiorio R, Bellantuono C, Arreghini E, Leoncini M, Micciolo R (1989). Psychotropic drug prescription in general practice in Italy: a two-week prevalence study. *Int Clin Psychopharmacol* 4: 7–17.
- Harding T (1984). Dépression en milieu carcéral: 2ème rencontre Internationale „Psychiatrie et Epidémiologie“ Genève 17–19 mars 1983. *Psychol Méd* 16: 835–9.
- Harding T, Zimmermann E (1989). Psychiatric symptoms, cognitive stress and vulnerability factors. A study in a remand prison. *Br J Psychiatry* 155: 36–43.
- Jaeger M, Monceau M (1996). La consommation des médicaments psychotropes en prison. Ramonville Saint-Agne: Editions Erès.
- Joukamaa M, Sohlman B, Lehtinen V (1995). The prescription of psychotropic drugs in primary health care. *Acta Psychiatr Scand* 92: 359–64.
- Levin BH, Brown WE (1975). Susceptibility to boredom of jailers and law enforcement officers. *Psychol Rep* 36: 190.
- Martin E (1984). Comparison of medical care in prison and in general practice. *BMJ* 289: 967–9.
- Mata M, Antoja P, Hernandez J, et al. (1990). A drug prescription study in chronic pathology at a primary care center. *Aten Primaria* 7: 119–20, 122–4, 126.
- McElrath K (1994). A comparison of two methods for examining inmates' self-reported drug use. *Int J Addict* 29: 517–24.
- Sommers I, Baskin DR (1991). Assessing the appropriateness of the prescription of psychiatric medications in prison. *J Nerv Ment Dis* 179: 267–73.
- Vaughn MS (1997). Civil liability against prison officials for prescribing and dispensing medication and drugs to prison inmates. *J Leg Med* 18: 315–44.
- Zimmermann E, von Allmen M (1985). Consultations médicales et consommations médicamenteuses en cours de détention préventive à la prison de Champ-Dollon. *Soz Präventivmed* 30: 312–21.

Address for correspondence

Dr. Bernice S. Elger
Institut universitaire de médecine légale
9, av. de Champel
CH-1211 Geneva 4

Phone: +41 22 869 8202 or
+41 22 702 5589
Fax: +41 22 869 8291

e-mail: Bernice.Elger@hcuge.ch