

**REVIEW
ARTICLE**

Benzodiazepines prescription in Dakar: a study about prescribing habits and knowledge in general practitioners, neurologists and psychiatrists

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ABSTRACT

Benzodiazepines are relatively well-tolerated medicines but can induce serious problems of addiction and that is why their use is regulated. However, in developing countries like Senegal, these products are used without clear indications on their prescription, their dispensation or their use. This work focuses on the prescription of these medicines with a view to make recommendations for their rational use. Benzodiazepine prescription was studied with psychiatrists or neurologists and generalists in 2003. Specialist doctors work in two Dakar university hospitals and generalists in the 11 health centres in Dakar. We did a survey by direct interview with 29 of 35 specialists and 23 of 25 generalists. All doctors were interviewed in their office. The questionnaire focused on benzodiazepine indications, their pharmacological properties, benzodiazepines prescribed in first intention against a given disease and the level of training in benzodiazepines by doctors. Comparisons between specialists and generalists were made by chi-square test. Benzodiazepines were essentially used for anxiety, insomnia and epilepsy. With these diseases, the most benzodiazepines prescribed are prazepam against anxiety and insomnia and diazepam against epilepsy. About 10% of doctors do not know that there is a limitation for the period of benzodiazepine use. The principal reasons of drugs choice are knowledge of the drugs, habit and low side effects of drugs. All generalists (100%) said that their training on benzodiazepines is poor vs. 62.1% of specialists, and doctors suggest seminars, journals adhesions and conferences to complete their training in this field. There are not many differences between specialists and generalists except the fact that specialists prefer prazepam in first intention in the insomnia treatment where generalists choose bromazepam. In addition, our survey showed that specialists' training in benzodiazepines is better than that of generalists. Overall, benzodiazepine prescription poses problems particularly in training, and national authorities must take urgent measures for rational use of these drugs.

INTRODUCTION

Benzodiazepines are the most prescribed psychotropic drugs [1,2] and their success can be explained by the

simplicity of their use, their efficacy and the less lethal risk in case of overdose [3]. However, when used at high doses and during long periods, they can induce abuse and dependence [4]. They also can induce sedation, falls and

paradoxical effects which would not be as important as related by the media [5,6]. For all these reasons, a lot of works were done in developed countries about the use of these drugs with strict guidelines for their prescription [7].

In developing countries like Senegal, few works were done about the prescription and use of these drugs. After a first study on the use of these drugs in Saint Louis in Senegal [8], we undertook this work on the prescription of benzodiazepines in Dakar by survey with psychiatrists or neurologists and general practitioners. The aim of this work was to evaluate benzodiazepine prescription practice in order to make recommendations for their rational use. Our secondary aim was to investigate if general practitioners and specialists have the same approach in benzodiazepine prescription.

MATERIALS AND METHODS

Materials

Questionnaire

Questions are in general closed and focused essentially on benzodiazepine indications, pharmacological properties, benzodiazepines prescribed as a first choice for a defined disease or symptom and the degree of training of the doctors relatively to these drugs.

Study population

Our study concerned the 35 specialized medical doctors in psychiatry and neurology working in the two university hospitals in Dakar, and the 25 general practitioners working in the 11 Dakar's health public centres.

Methods

The study was a cross-sectional survey made in 2003 by direct interview in doctor's office. Twenty-nine of 35 specialists and 23 of 25 general practitioners were included (the others practitioners were in holidays or in mission at the time of the survey). The results are processed by EpiInfo (version 6; CDC, Atlanta, GA, USA) and given as percentage.

Statistical analysis

Comparison between generalists and specialists was carried out by chi-square test and differences were considered significant at $P < 0.05$ level.

RESULTS

Doctors reported benzodiazepine prescription principally for anxiety (78% of cases) and insomnia (63%)

Table I Pharmacological properties of benzodiazepine (BZD) and indications after doctors' opinions and BZDs used in first intention for each indication. $N = 52$ (number of doctors interviewed).

Proprieties	%	Indications	BZD in first intention		
			%	%	
Anxiolytic	75	Anxiety	78	Prazepam	30
Hypnotic	44	Insomnia	63	Prazepam	21
Anticonvulsive	69	Epilepsy	36	Diazepam	28
Myorelaxant	38	Convulsions	34	Diazepam	34
Sedative	63	Hysteria and nervosas	28	Dipotassic clorazepate	11
		Agitations	26	Diazepam	25
		Depression	17	Prazepam	11
		Others	30	–	–

Others: spasmophilia, anguish, toxicomania, blurred mood, functional colopathy, chronic delirium, hypochondria.

followed by epilepsy (36%) and other convulsions types (Table I). Anxiety, insomnia and epilepsy were cited respectively in 78%, 63% and 36% of the cases. Benzodiazepines prescribed as first choice were mainly prazepam and diazepam (Table I). In hysteria and nervosas, doctors chose in first intention dipotassic clorazepate. The three main reasons of drugs choice are drugs knowledge, habit and drugs with low side effects. Concerning pharmacological properties of benzodiazepines, anxiolytic properties were the best well known (75% of doctors) and myorelaxant properties were less known (38% of doctors) (Table I). About 10% of doctors did not know that benzodiazepine use is restricted in duration or dosage and 13% did not respect duration of treatment.

Doctors report a lack of good training about benzodiazepines. About 79% of them said that their training level is poor vs. 21% for whom the training is good. They propose to participate to seminars, subscribe to journals or attend conferences for improving their training on benzodiazepines.

Concerning benzodiazepine indications, general practitioners use it in the same manner as specialists in anxiety and insomnia (Figure 1a). For convulsions, generalists use more benzodiazepines than specialists. However specialists use more benzodiazepines than generalists in epilepsy, hysteria and nervosas, agitations and depression (Figure 1b). On the other hand, benzodiazepines prescribed as a first choice for a defined disease or symptom were the same, except for insomnia where specialists chose prazepam and general practitioners bromazepam. There was no difference in knowledge of anxiolytic property between specialists and general practitioners. However, specialists better knew

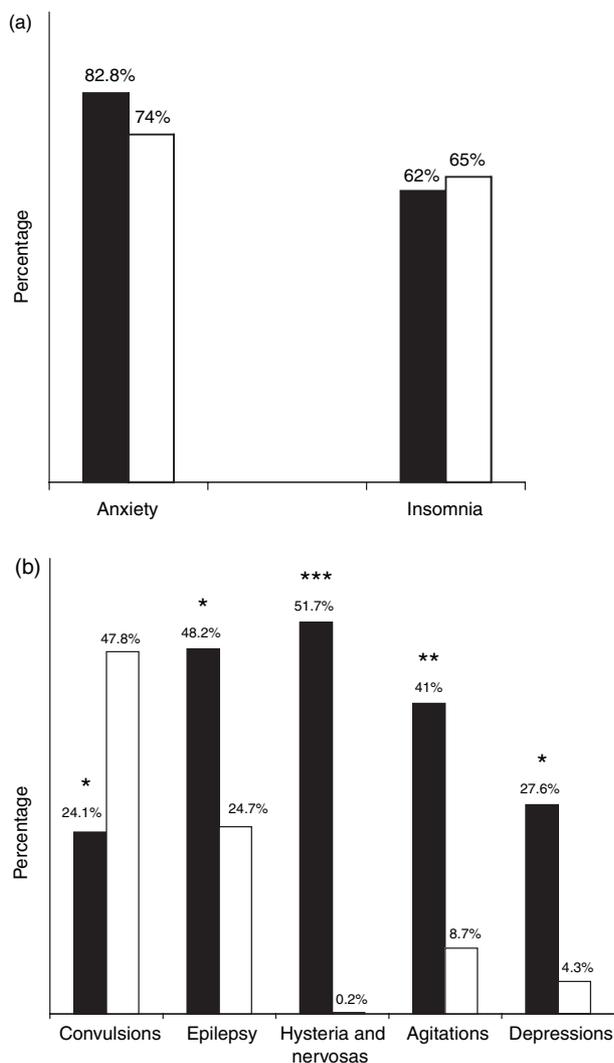


Figure 1 (a) Breakdown benzodiazepines indications according to specialists (neurologists or psychiatrist) (black) ($n = 29$) and general practitioners (white) ($n = 23$). Difference is not significant. (b) Breakdown benzodiazepines indications according to specialists (neurologists or psychiatrist) (black) ($n = 29$) and general practitioners (white) ($n = 23$). Difference is significant: * $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$.

other properties such as anticonvulsive, sedative, hypnotic and myorelaxant properties ($P < 0.05$) (data not shown). Finally, all generalists (100%) said that their level of training on benzodiazepines is poor vs. 62% of specialists. The difference is significant ($P < 0.05$).

DISCUSSION

This work is necessary for us because it focuses on real use of drugs in post-marketing. Clinical trials before

marketing can be well done but they only have a predictive value concerning the benefit-risks ratio of drugs. The major findings of this work were that doctors' training on benzodiazepine prescription is poor and physicians did not use the proper benzodiazepine to treat insomnia. Also there is practically no difference in the approach on benzodiazepine prescription between specialists and general practitioners. Our results show that anxiety is the first symptom for which benzodiazepines are used with percentages of 82.8% among specialists and 74% among generalists. There is no significant difference between these two properties for physicians. These results can be explained by the fact that most medical doctors know the anxiolytic property of benzodiazepines. Feline and Le Goc [9] in France have shown in their study that acute anxiety is a very important indication of benzodiazepines. Henry et al. [10] also revealed that the most frequent benzodiazepine indication is anxiety.

Benzodiazepines used in first intention by all physicians are prazepam in anxiety and insomnia, diazepam in epilepsy, convulsions and agitations and dipotassic clorazepate in hysteria and nervosas. Benzodiazepines available in Senegal are alprazolam, bromazepam, clobazam, clonazepam, diazepam, dipotassic clorazepate, lorazepam, midazolam, oxazepam, prazepam tetrazepam and zolpidem which is a benzodiazepine-like product. The most frequent use of prazepam in anxiety could be explained by the fact that it is a very well-known drug whose efficacy is known. But its use in first intention in insomnia is not pharmacologically justified because its half-life is so longer. Normally, doctors must use short half-life benzodiazepines like nitrazepam, flunitrazepam, midazolam or benzodiazepine-like products such as zopiclone or zolpidem to treat isolated insomnia or benzodiazepines without effective metabolites. However, prazepam has a half-life of 65 h. Moreover, insomnia is not an indication of prazepam. National authorities must also give clear guidelines for the treatment of insomnia like in Norvege where only nitrazepam, flunitrazepam and zopiclone are allowed [7]. Nevertheless, when we compared generalists to specialists, we saw that generalists choose bromazepam in first intention against an isolated insomnia where specialists prefer prazepam. The choice of generalists is better because the half-life of bromazepam is shorter, around 20 h. Similarly, a survey made in Bordeaux with 4007 patients has shown that bromazepam and lorazepam whose half lives are relatively short (15–20 min) are the most frequently prescribed benzodiazepines against insomnia [11]. The

doctors' three main reasons for choosing benzodiazepines are drugs knowledge, habit and drugs with low side effects. Pharmaceutical company representatives do not seem to have really influenced the doctors' choice.

The anxiolytic property of benzodiazepines is the best known with 75% of doctors while 44.2% of them know the hypnotic property. It is curious that 25% of doctors do not know the anxiolytic property which is the principal property of benzodiazepines and nearly 56% the hypnotic propriety. In this latter case, that is a real public health problem. In fact, doctors who do not know the hypnotic property of benzodiazepines will not tell patients to stop driving cars when they use benzodiazepines and this may induce accidents and death. In fact, when prescribing drugs, the physician is responsible to warn his patient about potential impairment of driving capability. To do this, he needs to be aware of the duration and profile of actions, notably sedative and other effects affecting vigilance, cognitive and psychomotor functions [12]. All these reasons must bring national authorities to look again at the training of doctors relatively to benzodiazepines.

Treatment time was observed in 87.3% of cases and nearly 13% of doctors did not observe the treatment time. This attitude can induce many problems like dependence which is noted in 50% of patients using benzodiazepines for more than 1 year [13]. To avoid these problems, benzodiazepines use was regulated and treatment must not exceed 4 and 12 weeks for insomnia and anxiety, respectively. It is important to mention that these rules on benzodiazepine prescription are not available in a guideline from Senegalese national drugs regulatory authority. However, they are mentioned in drugs prospectus and in *Widal Dictionary* which is a reference document for drugs use in Senegal.

Our study also showed a problem of training of doctors on benzodiazepines. All general practitioners said that their training on benzodiazepines is poor. A lot of specialists (62%) have the same problem. For these reasons, training curricula at university must be revised and continuing medical educations should be obligatory in our country for doctors. In our opinion, this is the best way to secure benzodiazepine prescription and use. It is worth mentioning that specialists are better trained than generalists and hence are well informed about the anticonvulsive, sedative, hypnotic and myorelaxant properties of benzodiazepines.

CONCLUSION

Benzodiazepine prescription in Dakar (Senegal) poses the problem of benzodiazepine choice against an isolated insomnia because doctors prefer in first intention prazepam whereas they should prescribe a short half-life benzodiazepine. It poses also the problem of physician training which must be improved by adapting training curricula to the needs of society. Thus, pharmaco-epidemiological studies like this one must be carried out in developing countries as well as in developed countries because all people in both groups of countries have the same problems of drug prescriptions and use.

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