

## EDITORIAL

## Non-medical Use of Medications in Middle and Low Income Countries

REZA AFSHARI\*

Addiction Research Centre, Mashhad University of Medical Sciences, Mashhad, Iran

Non-medical use of prescription drugs (also known as medication diversion) is a common problem in middle and low income countries where monitoring capacities and law enforcement mechanisms are not efficiently developed (1-3).

Prescribed central nervous system (CNS) stimulants, sedative hypnotics and long-lasting opioids are the most important drugs diverted throughout the world (1-4). Non-medical use of stimulant medications used for attention deficit hyperactivity disorder (ADHD) including methylphenidate mostly occurs among younger population at school ages (1,4). On the other hand, diversion of sedative hypnotics such as benzodiazepines and opioids such as tramadol, methadone and buprenorphine is commonly done by opioid dependent adults (2,3-5). In this issue of the journal, clinical effects of non-medical use of modafinil - a CNS stimulant- in the United States and tramadol in opioid dependents in Iran have been addressed (6-8).

Prolonged use of psychostimulants increases the risk of dependence (9). Moreover, non-medical use of opioids fails the effectiveness of abstinence treatments for addicts. These endanger public health. Hence, practical measures should be taken to reduce the risk of diversion:

1. Diagnosis of the disease should be established before prescribing any diversion potential medications.
2. Susceptible patients and in general susceptible population (school aged children and youth) should be regularly supervised and monitored for use of alcohol, opioids, methamphetamine (and other CNS stimulants), marijuana and sedative hypnotics.
3. Anticipatory guidance including description of abuse potential properties of the mentioned medications should be provided for patients' relatives.
4. For each patient under methadone/buprenorphine maintenance therapy (MMT/BMT) or ADHD treatment, a prescription record should be completed by the clinic.
5. Off-label prescription of medications should be monitored and controlled by higher health authorities.

Moreover, in low and middle income countries, the extent of the problem is wider as the majority of medications including antibiotics, pain killers, tranquilizers and narcotics are easily available. Hence, additional steps should be taken:

1. Current regulation on supervision of medication dispensing should be enforced.
2. Ratifying more comprehensive regulations on controlling medication diversion should be accelerated.
3. Distribution of medication with abuse potential should be limited to governmental pharmacies.
4. Prescription of pain killers should be controlled. Length and type of permitted painkillers that can be prescribed

by dentists and physiotherapists should be limited.

5. Considering the success of distribution and follow up of methadone and buprenorphine by physicians in MMT/BMT clinics, it could be a good idea that sedative hypnotics and other drugs with abuse potentials being distributed by specialist clinics.

Medication diversion should be controlled. One possible solution can be medication dispensing by physicians. In this case, comprehensive regulation should be ratified to control this practice very strictly. This process should be evaluated to determine the extent to which patients' and practice needs are being met. If implemented, this can help to decrease medication dispensing errors, and enhance patient compliance, convenience and education. Physician-dispensing prescription can also reduce the costs and save the patient a trip (10,11).

## REFERENCES

1. Habibzadeh A, Alizadeh M, Malek A, Maghbooli L, Shoja MM, Ghabili K. Illicit methylphenidate use among Iranian medical students: prevalence and knowledge. *Drug Des Devel Ther* 2011;5:71-6.
2. Babakhanian M, Sadeghi M, Mansoori N, Alam Mehrjerdi Z, Tabatabai M. Nonmedical abuse of benzodiazepines in opiate-dependent patients in tehran, iran. *Iran J Psychiatry Behav Sci* 2012;6:62-7.
3. Yokell MA, Zaller ND, Green TC, Rich JD. Buprenorphine and buprenorphine/naloxone diversion, misuse, and illicit use: an international review. *Curr Drug Abuse Rev* 2011;4:28-41.
4. Wilens TE, Adler LA, Adams J, Sgambati S, Rotrosen J, Sawtelle R, et al. Misuse and diversion of stimulants prescribed for ADHD: a systematic review of the literature. *J Am Acad Child Adolesc Psychiatry* 2008;47:21-31.
5. Tashakori A, Afshari R. Tramadol overdose as a cause of serotonin syndrome: a case series. *Clin Toxicol (Phila)* 2010;48:337-41.
6. Bohnenberger KA, Krenzlok EP. Retrospective Review of Trend in Modafinil Overexposures Reported to American Poison Information Centers. *Asia Pac J Med Toxicol* 2014;3:50-4.
7. Ghasempouri K, Khosrojerdi H, Khadem-Rezaiyan M. Tramadol Overdose Induced Transient Paresthesia and Decreased Muscle Strength: A Case Series. *Asia Pac J Med Toxicol* 2014;3:59-63.
8. Majidi M, Nekouefard S. Seizure and Rhabdomyolysis: Serious Complications of Tramadol Overdose. *Asia Pac J Med Toxicol* 2014;3:90.
9. Methylphenidate: abuse and dependence. Abuse confirmed in France. *Prescrire Int* 2009;18:168.
10. Medication dispensing in pediatric office practice. Committee on Practice and Ambulatory Medicine, American Academy of Pediatrics. *Pediatrics* 1995;95:301-2.
11. Nystrom JS, Clark RL. Physician dispensing: an old idea is new again. *MGMA Connex* 2006;6:36-41.

\* Correspondence to: Reza Afshari, MD, PhD, MPH. Associate Professor, Addiction Research Centre (ADRC), School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran.

Tel/Fax: +98 511 852 5315, E-mail: afsharir@mums.ac.ir