

## Misleading Drugs with Street Name Temgesic and Norgestic in Hand of Iranian Drug Abusers; What Are Their True Natures?

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### ABSTRACT

**Background:** The illicit vials with street name Temgesic and Norgestic has been distributed in black market of Iran in recent years. With reference to their name, one may presume that they contain the opioid Buprenorphine; but there are some reports in opposition to this. True nature of these vials has been shown in the current study.

**Methods:** All of drugs that had been apprehended by law enforcement police in Arak city in center of Iran during March 2010 to September 2010 were included in the study. Totally 31 samples were analyzed. The samples were examined using thin layer chromatography (TLC) method. Gas chromatography with mass Spectrophotometry (GC-MS) or high performance liquid chromatography (HPLC) methods were used to confirm the results.

**Results:** All of the samples contained opioids include Heroin, Morphine, Codeine, Mono acetyl morphine and Acetyl codeine with varying proportions. In addition, pheniramine, amitriptyline and caffeine were found in some samples. There was no Buprenorphine in the samples. Presence of the steroid Dexamethasone in the samples was shown too.

**Conclusion:** When the physicians treat the patients with acute or long-term complications of Temgesic and Norgestic abuse, they should mull over true nature of the vials; not their disingenuous street name.

**Keywords:** Buprenorphine; Heroin; Norgestic; Street Name; Temgesic.

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### INTRODUCTION

Today, addiction is a major problem. Number of drug abusers is worrisome, according to international statistics [1-5].

Buprenorphine is a substance with agonist-antagonist effect which can be replaced methadone, since it's less addictive. Its rehabilitation symptoms are less than clonidine and its success rate is reported to be 60-80%. Buprenorphine is a relative agonist of narcotic receptors [6]. Its sublingual absorption is about 70%. It is used for detoxification, long-term and short-term treatment [7, 8].

Buprenorphine is prescribed only in sublingual tablet and injective forms, which is sold in Iran's black market. In previous years, its injective form, called Norgestic, was used in some illegal rehabilitation centers which led to

synthetic drug, namely Norgestic, which had apparently no similarity to buprenorphine [8].

At first, buprenorphine entered Iran as a rehabilitative medication with supposedly no mentionable adverse effects. But, gradually its addictive property was observed. Buprenorphine abuse was started in 1987 in India. In study which was performed in Nepal, 42.1% of opioid addicted people, stated buprenorphine abusing. In USA, it is reported that buprenorphine is a medical drug which might be used for non-medical purposes [9-11]. In Iran, drug abusers may attend in illegal rehabilitation centers to remain unknown and to save their illness secrets. It is not only useless, but also will lead to severe mental and physical complications. These centers have been founded without supervision of proficient personnel and supportive actions,

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thus would not have any efficacy, except wasting money and time of addicted patient [12].

The first generation of injective form of Buprenorphine was packed in glass packages like vitamin supplement and entered the market with the name Norgestic. It was claimed to be a suitable replacement for opioids without any addictive side effect. But some individuals were addicted to Norgestic [11].

Later, its name was changed for better marketing and removing the negative position of Norgestic, and it was sold with names like Temgesic, Supergestic and Afzor without apparently having any buprenorphine in their composition [11].

According to mentioned drugs rampancy between drug abusers and different believes and opinions across drug abuser, ordinary people, even administrative staff and police which is occasionally seen in the media which some of them were reported earlier [13, 14], we decided to perform an objective research on the real composition of the mentioned drugs.

## MATERIALS AND METHODS

In a deductive observational-descriptive cross sectional study, all discovered drugs with the alleged names Temgesic, Norgestic and Afzor in six mid months of 2013 in Arak city, Iran was analyzed. The drugs were sent to Arak's local department of forensic medicine, with cooperation of law enforcement police. Primary tests were done in medical toxicology laboratory of the department. The samples were sent to the reference laboratory of national legal medicine organization which used GC/MS and HPLC for the analyses.

Firstly, the shape, type, and RF of the stains derived from samples by TLC method were compared with stains of the standard sample. TLC method was performed with specified solvent of chromatographic tanks of medical forensic organization. If the stain and RF of the sample was in the region similar to the standard sample, it was sent to the reference laboratory of national legal medicine organization to determine its composition using HPLC and GC/MS techniques and devices. If any impurity was observed in the sample, it was reported.

Data was inserted into the SPSS Software (version 16) and was statistically analyzed.

The samples were sent to Arak's local department of forensic medicine in an anonymous process and the researchers follow the health ministry and Helsinki declaration rules. This research has been approved in local ethical committee of Arak Medical University with reference code 55177. Ethics committee's rules have been observed in all steps of the research.

## RESULTS

In the present research, 31 samples with the alleged name of Temgesic, Norgestic, and Afzor were analyzed. Heroin and similar substances was observed in 24 sample, using TLC method. In samples evaluation with GC/MMS confirmatory method, the mentioned substances in the table 1 were found.

**Table 1.** Chemicals that were found in the studied samples.

Substance	Number (percent) of samples with positive result
Heroin	24 (77%)
Morphine	22 (71%)
Codeine	29 (94%)
Monoacetyl morphine	23 (74%)
Acetyl codeine	23 (74%)
Papaverine	4 (13%)
Noscapine	7 (23%)
Pheniramine	19 (61%)
Caffeine	7 (23%)
Lidocaine	1 (3%)
Amitryptiline	7 (23%)

## DISCUSSION

Studies showed that 37% of older than 12 years population in USA have experienced narcotic drugs. USA's narcotic investment is estimated to be 200 million dollars. In Iran, there are about one million two hundred habitual drug abuser and eight hundred thousand occasional drug abuser [15].

Non-medical use and abuse of opioid drugs have been reported all over the world [12]. Temgesic, Norgestic, and similar substances are examples of the abused drugs. These drugs are available in both injective and sublingual forms that used initially for drug rehabilitation [16, 17].

On the other hand, when a drug enters illegal market, other drugs or impurities might be sold with its name without real contents of the earlier drugs. For instance, while it was thought that is stimulant, like drugs available in Europe and USA, they are really opioid drugs [18].

The illegal sellers of drugs of abuse may sell their drugs as a business name or medicinal name and supply the drug with the name of a well-known medication. Although with the name Norgesic, presence of buprenorphine in the drug is expected, in Iran black market it is not the case.

In study of Koshesh et al., Norgesic abuse was reported and probability of corticosteroids in Norgesic vials was proposed. In test which was done on the patient's urine, presence of morphine and absence of buprenorphine was reported [15]. In study of Farhodian, clinical dissimilarity of so called Norgesic drug with the similar brand in European countries and USA was proposed [19]. In study of Siavash, incidence of Cushing's syndrome in 30 patients who abused injective Norgesic is pointed and heroin and dexamethasone was found in their vials [20]. Kazemi et al. studied 11 patients with avascular necrosis of hip joint who have abused Norgesic and Temgesic. It's been concluded that the mentioned drugs contained corticosteroids and probably some other toxicities [21]. In study of Khorvash et al., 15% of in-patients of a hospital in Esfahan were due to drug abuse adverse effects, one fifth of which were caused by injective Norgesic and Temgesic; 37.5% of which led to death [16].

This study showed that no buprenorphine was found in any sample, but all samples contained codeine, heroin, morphine or similar substances which confirms studies of Koshesh and Sivash [15, 20].

Dexamethasone was present in all samples as it was detected by TLC method. It also confirms in other studies [15, 20- 22].

## CONCLUSION

Buprenorphine can be used as substitute therapy in opioid addicts [23-25]. However, It is concluded that in vials known as Norgesic and Temgesic available in Iran's black market, no buprenorphine is observed. So, they are not suitable for drug rehabilitation. These vials have mainly opioid compounds and these names are

misused for selling opioid more easily. Thus, when a drug abuser refers to rehabilitation centers or emergencies, vial's real composition should be noticed and names shouldn't be taken to account.

Appropriate information on the real nature and composition of these vials should notify to the public and potential consumers of these drugs by those who are involved and government policy makers.

## Conflict of Interest

All authors declare that they have no conflict of interest.

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