Asian Journal of Psychiatry 16 (2015) 3–6

Contents lists available at ScienceDirect

Asian Journal of Psychiatry

journal homepage: www.elsevier.com/locate/ajp

Review

Pentazocine use among people who inject drugs in India

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ARTICLE INFO

Article history:
Received 11 February 2015
Received in revised form 10 June 2015
Accepted 22 June 2015

Keywords:
Pentazocine
People who inject drugs
India
Substance use
Injection drug use

ABSTRACT

Data regarding prevalence of Pentazocine use is sparse and intervention strategies aimed at it are meager. In view of the fact that Pentazocine has significant abuse potential contrary to what was earlier thought, along with the actuality that people who use injectable Pentazocine are at risk of various complications as HIV, this domain needs more attention. This review examines the extent of the problem of Pentazocine use with consequent effects on the overall health of the people. It is based on nationally representative large scale survey(s) and other reliable documented data on Pentazocine abuse. Possible strategies and future lines of actions have been delineated. Data suggests Pentazocine use from 0.1% to 21.8% in different parts of the country. Various reports have also linked it with unique health complications. Its use has been reported mostly among subjects seeking treatment, with recent reports suggesting increasing use at street level. The strategies to document the extent of injection drug use applied in most cases might not be adequate. There is a need for further research and monitoring to document the burden of the problem. Indirect methods to estimate the extent of problem may need to be implemented and regulatory mechanisms for prescription drug use may need to be strengthened.

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1. Introduction

Substance use and dependence is a major health problem. In India, the national survey on the extent, pattern and trends of drug abuse reported the prevalence of ever use of opiates to be around 1% and the prevalence of current use (use during last one month) of opiates as around 0.7% (Ray, 2004). In the survey, among the treatment seeking subjects, 26% reported use of opiates as a primary drug of abuse, of which 11.1% were using heroin, 8.6% were using opium, 2.6% were using propoxyphene and the use of 'other' opiates was 3.7%. The 'other' opiates primarily included

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http://dx.doi.org/10.1016/j.ajp.2015.06.009
1876-2018/

Pentazocine and buprenorphine. This data from the year 2004 is the most comprehensive data on drug use in the country till date. However it did not focus specifically on Pentazocine use and does not provide a distinct picture of people who inject this drug. This review attempts to discuss the data available on Pentazocine use in the country and possible ways to improvise methods of data collection in such population.

2. Pentazocine use worldwide

Pentazocine was synthesized as a part of a deliberate effort to develop an effective analgesic with little or no abuse potential (Bellville, 1967). It has agonistic actions and weak opioid antagonistic activity. The opioid receptor activity of Pentazocine has been characterized as that of a κ-agonist and either a partial agonist or antagonist at μ-receptor^{-}. Thus the pattern of CNS effects produced by Pentazocine generally is similar to that of the morphine-like opioids, including analgesia, sedation, and respiratory depression. In 1970s Pentazocine tablets were commonly mixed with tripelennamine (an antihistaminic) and were injected intravenously. This combination was commonly known as T's and Blues. In 1982, the drug was withdrawn from the market and was reintroduced in 1983 as Pentazocine–naloxone combination. This led to considerable decrease in misuse; still, few cases of misuse of Pentazocine–naloxone combination have been reported (De Bard and Jagger, 1981; Lahmeyer and Craig, 1987). Naloxone blocks the euphoric effects of Pentazocine, thereby reducing the chances of its use by those injecting it. Current literature also suggests that abuse of Pentazocine is certainly not widespread in developed countries, with only few case reports from USA and Japan (Mudrick et al., 2011; Stromberg et al., 2012; Watanabe et al., 2004) and a single cluster analysis from Canada (Shaw et al., 2008) suggesting its use. In India, however, the data are scarce and available reports suggest that the parenteral form is procured and used by the people who use drugs (Bhalla et al., 2006; Grover et al., 2005).

Pharmacological studies worldwide have suggested the subjective effects of Pentazocine to be mildly euphoric or even dysphoric at times (Goldstein, 1985; Preston and Bigelow, 1993; Walker et al., 2001; Zacny et al., 1998). Considering its lesser potential to produce euphoric effect and the likelihood to induce dysphoric effects, the phenomena of its use needs further evaluation. Lack of awareness on Pentazocine use, considering it to be unimportant in front of heroin use, and deficiency of an established drug use monitoring system may have adversely affected the focus on this drug in developing countries.

3. Method of review in the Indian population

Literature from published studies was searched from PUBMED and Google Scholar. Data from organizations such as United Nations Office on Drugs and Crime was also reviewed. All studies with the words "Pentazocine", "Pentazocine use", "Pentazocine abuse" and "Pentazocine dependence" in the title or the abstract were looked into. The studies including Indian subjects were selected as a part of this review. Studies providing any data regarding the prevalence of Pentazocine use or reports suggesting use in different parts of the country and those that documented the complications due to Pentazocine use were included.

4. Studies among people using drugs in India

Most of the regional studies reporting Pentazocine use among people using substances have included the treatment seeking subjects. One of the earliest reports is the description of eighteen cases of Pentazocine use described among the treatment seekers of a de-addiction center over three years. The article describes the reasons for its initiation to be iatrogenic in most cases (Saxena et al., 1985). Grover et al. (2005) did a retrospective chart review of 35 women using substances, attending a tertiary care Drug De-addiction and Treatment Center in North India. They studied the socio-demographic and clinical profile of these substance-dependent women and found that the commonest used class was opioid and among the opioids, Pentazocine was the commonest drug used (42.9% of them used Pentazocine). A similar study on the profile of persons using substances, using the emergency services in a tertiary care hospital in Sikkim involving 54 patients showed that 14.8% used opioids. It was also reported in the study that among the subjects, 16.7% were those who injected drugs and the commonly used drugs were Pentazocine and Buprenorphine (Bhalla et al., 2006). Even in adolescent populations, a clinic based study found 2.4% of them using Pentazocine as the primary substance of use (Saluja et al., 2007). These reports suggest that Pentazocine use among treatment seekers ranges from 2.4% to 42.9% and that it occurs in different parts of the country. All of these studies have only suggested parenteral use.

Available data has also suggested considerable use among people injecting drugs at street level. A multicentric study to assess injecting drug use in India, was conducted in 5 sites (Kolkata, Chennai, Delhi, Imphal and Mumbai). The study reported that the main drugs being used through the injecting route were heroin and pharmaceutical preparations like Buprenorphine, Chlorphenaramine, Diazepam, Propoxyphene, Pentazocine and Promethazine (Dorabjee and Samson, 2000). Another recent multicentric study in India reported a high proportion of subjects who injected Pentazocine. Out of 902 subjects, 65% were injecting pharmaceutical opioids, and 21.8% were using injection Pentazocine (Ambekar et al., 2014). The study also found most of those using Pentazocine to be employed and staying with a stable partner. Those using Pentazocine were also prone to various complications including overdose. Thus these data probably suggest an alarming trend of Pentazocine use shifting to the street level.

4.1. Complications of injection Pentazocine use

Complications of Pentazocine use have been reported as case reports from different parts of India including Delhi (Goyal et al., 2006; Prasad et al., 2005); Lucknow (Wanchu and Misra, 1995) and Chandigarh (De et al., 2007) from the North, and Chennai (Ganeshram et al., 2009) and Bengaluru (Silva et al., 2002) from the South. Most of these reports suggest the initiation of use to be iatrogenic (De et al., 2007; Ganeshram et al., 2009; Goyal et al., 2008; Sarraf et al., 1996; Silva et al., 2002; Das et al., 1999).

In the light of the fact that Pentazocine use in India is mainly through parenteral route, HIV related risk behaviors become a very epochal issue. The sharing of syringes and needles is relatively common among people who inject drugs. A study reported that the sharing of needles or syringes was observed in up to 9.6% among those using Pentazocine (Ambekar et al., 2014). An old study from a western country (Schlicher et al., 1971) had put forward the prevalence of local complications among those using injection Pentazocine to be around 33%. The first such report from India appeared in 1996 suggesting development of cutaneous complications in a case of long term Pentazocine use (Sarraf et al., 1996). Further reports suggested calcific myofibrosis (Das et al., 1999; Goyal et al., 2008; Silva et al., 2002), unique skin ulceration and abnormal skin pigmentation (De et al., 2007; Prasad et al., 2005), cutaneous sclerosis and panniculitis (Gandhi et al., 2004), renal amyloidosis (Raju et al., 2002), rhabdomyolysis (Ganeshram et al., 2009) and limited cutaneous scleroderma (Wanchu and Misra, 1995) in those using injection Pentazocine. These complications appear to be uniquely related to injection Pentazocine use, though