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Factors associated with non-adherence and misuse of opioid maintenance treatment medications and intoxicating drugs among Finnish maintenance treatment patients

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ABSTRACT

Background: The intravenous (IV) use of opioid maintenance treatment (OMT) medications and other intoxicating drugs among OMT patients is a challenge for many OMT units and affects treatment outcomes. The aim of this study is to examine factors associated with IV use of OMT medications and other intoxicating drugs among Finnish OMT patients.
Methods: A cross-sectional study was conducted among all Finnish OMT patients of whom 60% (n = 1508) participated. The data were collected by anonymous questionnaire. Binominal regression analysis with unadjusted and adjusted ORs was conducted to evaluate predictors for IV use.
Findings: Factors associated with the injection of a patient's own OMT medication were: being treated with buprenorphine-naloxone (BNX) (OR 2.60, p = 0.005) with a low dose (<9.0 mg/day; OR 5.70, p < 0.001) and being treated in a health-care centre (OR 2.03, p = 0.029). Factors associated with the injection of illicit OMT medications were: being treated with BNX (OR 5.25, p < 0.001) with a low dose (<9.0 mg/day; OR 2.89, p = 0.017), lack of psychosocial support (OR 2.62, p < 0.001) and concurrent use of psychotropic medications from illicit sources (OR 4.28, p < 0.001). Associated factors for the injection of other intoxicating drugs were: concurrent use of illicit drugs (OR 1.72, p = 0.015), psychotropic medications from illicit sources (OR 4.78, p < 0.001) and from a doctor (OR 1.93, p = 0.004).
Conclusions: More effort should be made to reduce concurrent injecting use during OMT. This may be done by addressing concurrent substance use orders more effectively, by ensuring that patients receive an optimal BNX dose and by providing more psychosocial support.

1. Introduction

Opioid maintenance treatment (OMT) has been proven effective in the treatment of opioid dependency, as it retains people in treatment (Mattick et al., 2009,2014), suppresses illicit opioid use (Marsch, 1998; Mattick et al., 2003, 2009, 2014), decreases criminal activity (Marsch, 1998; Mattick et al., 2009; Vorma et al., 2013) and the occurrence of high-risk injecting practices (Gowing et al., 2011, 2006; Marsch, 1998; Mattick et al., 2009). In Finland, 2439 of the estimated 13,000 to 15,000 problem opioid users in the country received OMT at the end of 2011 (Ollgren et al., 2014; Partanen et al., 2014). OMT in Finland includes oral liquid methadone (MET), buprenorphine-naloxone (BNX) tablets and soluble films (Suboxone®, Reckit-Benckiser). In 2008 buprenorphine (BUP) was withdrawn and placed under special licence (pregnancy only). According to Finnish clinical guidelines, take-home allowances of OMT medications are only granted to stable and motivated patients. MET and BUP are mostly dispensed by addiction treatment services and take-home doses of MET are often diluted with water to discourage injecting. Finnish OMT programmes are divided into rehabilitation and harm reduction approaches (MSAH,

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2008). In rehabilitation programmes, where detoxification is one of the goals, urine screening and assessment of injection sites are part of the treatment protocol. In harm reduction programmes less supervision is involved. The level of psychosocial support during OMT also varies depending on the programme and treatment service.

However, in Finland and elsewhere, misuse and non-adherence of OMT medications amongst patients attending OMT remains a major concern. Adverse outcomes such as non-fatal and fatal overdoses (Bretteville-Jensen et al., 2014; Iwersen-Bergmann et al., 2014), and injection related injuries and diseases (Degenhardt et al., 2008; Jenkinson et al., 2005) are well documented.

1.1. Definitions

Misuse refers to use of a substance for a purpose not consistent with legal or medical guidelines, as in the non-medical use of prescription medications (WHO,1994). In this paper, the term misuse is used to describe intravenous (IV) use of intoxicating drugs or illicit OMT medications, which were obtained from outside an OMT service. Internationally, injecting rates of illicit OMT medications vary widely. In France, injection rates of BUP range from 15.3% to 46.5% among samples of patients receiving OMT (Guichard et al., 2003; Roux et al., 2008a,b; Vidal-Trecan et al., 2003) while in Australia injection rates of BUP range from 9% to 26.5% and of MET from 17% to 33% (Winstock and Lea, 2010; Winstock et al., 2008).

Non-adherence refers to any use of a medication by the person to whom it was prescribed where the medication is not taken according to prescription directions. During OMT, this may include escalation or reduction in dose, removal of supervised doses, stockpiling medication, missing doses and the injection of medication (Larance et al., 2011b). In this paper, the injection of a patient's own OMT medication is referred to as non-adherence. Most studies on the occurrence of non-adherence, where patients inject their own OMT medications, have been conducted in Australia. In these studies, injection rates of own medication have been found to vary from 13% to 24% for MET patients and from 13% to 19% for BNX patients (Degenhardt et al., 2009; Larance et al., 2011a, 2014). These studies indicate that IV use of both own and illicit OMT medications during treatment is still an ongoing challenge.

Psychotropic medications are defined as any pharmaceutical medications that mainly affect the central nervous system. When ingested, they affect mental processes, e.g., cognition (WHO, 2009). In Finland, they are legally available only with a prescription. In this paper, *any intoxicating drugs* refer to any substances that cause a state of intoxication. This may include own and illicit OMT medications, other psychotropic medications or illicit drugs.

'*Psychosocial support*' refers to interventions such as cognitive and behavioural approaches and contingency management techniques (WHO, 2009).

1.2. Factors associated with non-adherence and misuse

Existing research has identified a number of factors associated with non-adherence and misuse. This includes an inadequate BUP dose (Comer et al., 2010; Roux et al., 2008a; Vidal-Trecan et al., 2003), high doses of BUP (Guichard et al., 2003) and previous IV use of other intoxicating drugs such as BUP and other prescription opioids (Carrieri et al., 2003; Horyniak et al., 2011; Vidal-Trecan et al., 2003). In addition, social factors such as living on social benefits, not living in a stable relationship or having a prison background, together with health related issues such as depression and previous suicide attempts have been associated with non-adherence and misuse (Carrieri et al., 2003; Horyniak et al., 2011; Roux et al., 2008a, 2008b; Vidal-Trecan et al., 2003). Patients themselves have reported injecting in order to reduce cravings and to prevent withdrawal ('self-treatment'). Only rarely has the search for pleasure been reported (Moratti et al., 2010; Schuman-Olivier et al., 2010).

However, generalisation of the results from previous studies has been difficult, as they have been conducted among a subset of patients, for example within a single treatment service (Moratti et al., 2010). In addition, some results have been contradictory to each other, for example the results regarding BUP dose (e.g., Guichard et al., 2003; Vidal-Trecan et al., 2003). A better understanding of the factors related to non-adherence with OMT is essential to developing and improving treatment regimes. The aim of this study is to identify the factors associated with non-adherence, misuse of illicit OMT medications and intoxicating drugs among Finnish OMT patients.

2. Methods

2.1. Study sample and data collection

The study was conducted by the University of Helsinki and the National Institute for Health and Welfare (THL) between May and July, 2013. A questionnaire consisting of 18 multiple-choice and 4 free-text questions (see Supplementary material 1) was distributed to all treatment services providing OMT in Finland, excluding prisons. The questionnaire included questions concerning patients' background information, concurrent substance use, IV use of own and illicit OMT medications, IV use of other intoxicating drugs and diversion of OMT medications. Results regarding diversion have been published elsewhere (Launonen et al., 2015).

A total of 2512 questionnaires were sent to treatment services, whose staff distributed them to OMT patients to be completed anonymously. A cover letter to staff and OMT patients, explaining the study objectives and directions on distribution and collection was attached. To avoid duplicated surveys, each patient was provided with one questionnaire only.

Patients were asked to complete questionnaires anonymously and return them to staff in sealed envelopes. Patients were advised to seal their envelopes with a sticker to ensure they remained unopened until the point of analysis. Responses were voluntary and participants were reassured that return/non-return would not have any impact on treatment. The questionnaire informed OMT patients of the purpose of the study and confidentiality of responses. The importance of answering honestly was emphasised. Staff returned the sealed envelopes in prepaid postal pouches to THL.

All the completed questionnaires were registered and numbered. In addition, municipality numbers were registered so that regional coverage and comparison could be assessed. However, no personal or treatment centre identifying information was registered.

2.2. Data analysis

The data were described using percentages, means, standard deviations and medians. Binominal logistic regression models were used to analyse factors associated with non-adherence and misuse of OMT medications and intoxicating drugs. The dependent variable in each model was dichotomous (IV use of own or illicit OMT medications or intoxicating drugs yes or no). The explanatory variables were gender, age, duration of OMT, OMT medication and its dose, dispensation of OMT medication, treatment service, psychosocial support during treatment and concurrent substance use during the past six months. These were selected on the basis of factors that had been identified in previous literature as being associated with non-adherence and misuse (for example, Comer et al., 2010; Guichard et al., 2003; Roux et al., 2008a, 2008b; Vidal-Trecan et al., 2003; Carrieri et al., 2003; Horyniak et al., 2011), as well as new areas of