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Mini Review

Methadone Intoxication and Death is a New Disaster

MD Paitoon Narongchai*

Department of Forensic Medicine, Chiang Mai University, Thailand

***Corresponding author:** MD Paitoon Narongchai, Department of Forensic Medicine, Faculty of Medicine, Chiang Mai University, Thailand.

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Introduction

Methadone was synthesized in Germany from 1937 to 1939 [1,2] and approved in the United States in 1947. [1] Methadone is the most effectiveness which is used in OMT programs [2] and was on the World Health Organization's (WHO) List of Essential Medicines [1,3-6]. Methadone treatment programs has been recommended 80 mg daily dose and 0.4 mg/L blood concentration which is very good. [6-8] The effects of methadone were 8 to 36 hours [1,3]. The EDDP or 2-ethylidene-1, 5-dimethyl-3, 3-diphenylpyrrolidine, the principle metabolite of methadone, is one of evidence to diagnose the cause of death [9]. The mean blood concentration ratio of methadone to EDDP was 13.6:1 [10]. Respiratory failure, prolonged QT interval, cardiac arrhythmia are caused of death [1,11,12]. Benzodiazepines, especially Alprazolam, was the most common combined drugs in methadone intoxication and death [13-19]. The most common drug abuse and related death was heroin and methadone which was 42.4% and 3.8%, respectively [20]. Sweden, England, Wales, and Thailand, especially middle-aged man, were increasing of methadone deaths [21-24]. The prescription-related deaths and prescribing patterns are the most common problems in the OMT programs [24-27]. Methadone intoxication alone and death is very rarely reported [28,29]. However, the median lethal concentration of methadone (MLCM) of intoxication and death were reported in OMT and not in OMT were 0.06-2.0 mg/L and 0.07-0.62 mg/L respectively [29-34]. Methadone related deaths are caused by high incoming doses, increased dosages, and interaction with other drugs, especially benzodiazepines [35,36]. If methadone becomes more widely available for treatment programs, number of deaths will be increased [24,25,27]. The MLCM in corpses with deaths ascribed to methadone alone and multiple additional drugs were 0.09 mg/L and 0.06 mg/L respectively [37]. The postmortem concentration of methadone increases approximately 20% in blood after death because it is lipid soluble [38-42]. The solution to prevent prescription-related deaths are using data, providing good communication, methadone prescribing precautions, established standards for chronic prescriptions, and decreasing opioid and benzodiazepine combinations are highly recommended [43]. However, diagnosis cause of death including complete autopsy, pathological examination and toxicological findings are very advantageous and not over estimated [31,44]. The MLCM only related deaths was 0.435 mg/L [31]. Methadone only related deaths in non-OMT are very rare but combination of alcohol or psychoactive drugs and underlying diseases may have an increased risk of death [45]. However, the patients received excessive starting doses or methadone with take-home doses during the OMT easy died in many cases, especially children [23,46]. The abuse of methadone was usually found in patients who took methadone by themselves. We have many experiences of methadone intoxication which was the only cause of death in non-opioid-maintenance therapy or general population. In the past, this was very rare case in the general population. But we think that methadone intoxication and death will be common cause of death because it is prescribed easily and freely to addicted patients and it is not well controlled. Methadone intoxication and death will be the new disaster drug.

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