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## **Toxic relationship and drug addicted? – a case series of teenagers with behavioural disorders**

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### **Abstract:**

Poland is among the infamous leaders among countries when it comes to the percentage of suicide attempts among young people. Methadone is a long-acting opioid agonist, which is mainly used as substitution treatment for heroin and morphine addiction. There is a typical triad for methadone overdose consisting of respiratory failure, myopic pupils and central nervous system depression. It may also lead to QT prolongation with following torsade de pointes.

We present two teenager patients, who were poisoned with methadone. They were both under the influence of their boyfriend who was drug addicted. What is more, the girls both were in toxic relationship with the same man, who had similar influence on them.

First patient was 18 years old. She was admitted to Department of Toxicology and Cardiology because of intravenous methadone overdose. The treatment used improved the general condition. No abnormalities were seen in the clinical examination. Teenager was examined by psychiatrist and psychologist.

Second patient, 16 years old, was hospitalized twice. Teenager admitted that she got methadone from her boyfriend who is being treated for drug addiction. At the time of admission, the patient

was emotionally disturbed, tearful, and periodically aroused. After two days of hospitalization girl was discharged home under mother's protection. Three months later, 16 years old patient was admitted to the hospital again, because of intoxication with psychoactive substances and self-injuries. After three days of hospitalization, she was transferred to psychiatric hospital for further therapy.

We can indicate methadone use not only as methadone's level in urine, but also as EDDP, methadone's metabolite concentration in urine. Every person with symptoms of behavioural disorder should be as fast as possible be examined by psychiatrist and psychologist, to avoid suicide attempts.

**Key words:** methadone, self-injuries, drugs, addiction, behavioural disorder

### **Introduction:**

According to statistics run by the National Police Headquarters in Poland in 2018, 746 teenagers aged 13-18 tried to commit suicide. Poland is among the infamous leaders among countries when it comes to the percentage of suicide attempts among young people [1]. Suicidal attempts in Poland (2016) are more effective taken by men, but they are more often tried by women. For most of the people the main reason was mental illness (28,7%) [2].

Methadone is a long-acting opioid agonist, which is mainly used as substitution treatment for heroin and morphine addiction. It is also used as second-line drug in the treatment of cancer pain and in postoperative analgesia [3]. This drug has been used since 1950 for the management of opioid dependence [4]. In Lublin, there are methadone programs for addiction treatment. Patients receive a dose of methadone for a specific period of time and should take it orally. In this form, it reduces the symptoms of withdrawal syndrome and at the same time does not cause euphoria and symptoms associated with opioid use. Unfortunately, some patients qualified for this type of therapy administer intravenous methadone to intoxicate themselves.

There is a typical triad for methadone overdose consisting of respiratory failure, myopic pupils and central nervous system depression. It may also lead to QT prolongation with following torsade de pointes [5]. The action on the central nervous system is based on a strong analgesic and sedative effect. Methadone increases smooth muscle tone (except for smooth muscle of blood vessels and uterus). This lead to delayed gastric emptying, spastic constipation or

increased bile duct pressure [3]. Patients may become psychically dependent on methadone, but they can become less addicted to other drugs [6].

### **Material and method:**

We searched through whole medical documentation of patients, which were available at the Department of Toxicology and Cardiology in the first half of 2019. We also found research connected to our subject on Science Direct website.

### **Case reports:**

We present two teenager patients, who were poisoned with methadone. They were both under the influence of their boyfriend who was drug addicted. What is more, the girls both were in toxic relationship with the same man, who had similar influence on them.

First patient was 18 years old. She was admitted to Department of Toxicology and Cardiology because of intravenous methadone overdose. About three hours before coming to the hospital she took methadone. Girl was found unconscious in her boyfriend's apartment by her mother. She was given naloxone during transport to the hospital. Upon admission to hospital teenager was in logical verbal contact, auto- and allopsychically oriented, in a low mood, did not maintain eye contact. She claims that methadone use is only experimental. Patient had visible scars from punctures and self-injuries, she was uncritical of her behaviour and denied drug addiction. Her mother claims teenager was in a drug course for three weeks now. Patient mentioned to her mother about existence of suicidal thoughts. Girl went to psychiatrist, but only for one visit and she refused to meet doctor again. She has been taking drug for 1,5 years now. Her problems started when she met her actual boyfriend, who is a drug addict.

In urine of the patient amphetamine, methamphetamine, opiates, EDDP acid (metabolite of methadone), 6-monoacetylmorphine, cathinone and LSD was found.

The treatment used improved the general condition. No abnormalities were seen in the clinical examination. The patient underwent electrocardiography in which no deviations from the norm were noticed. Teenager was examined by psychiatrist and psychologist. On the second day of hospitalization, patient discharged herself from the clinic.

<b>Toxicology (urine)</b>	<b>First Patient</b>	<b>Second Patient (first hospitalization)</b>	<b>Second Patient (second hospitalization)</b>
<b>Amphetamine</b>	+	-	-
<b>Methamphetamine</b>	+	-	-
<b>Opiates</b>	+	-	-
<b>Cocaine</b>	-	-	-
<b>Cannabinoids</b>	-	-	-
<b>EDDP acid</b>	+	+	+
<b>6- monoacetylmorphine</b>	+	-	-
<b>MDPV – synthetic cathinone</b>	-	-	-
<b>MPD</b>	-	No information	-
<b>Methaqualone</b>	-	No information	-
<b>Cathinone</b>	+	-	+
<b>Mephedrone</b>	-	-	-
<b>AB-PINACA</b>	-	-	-
<b>Ecstasy</b>	-	-	-
<b>Phencyclidine</b>	-	No information	-
<b>Ketamine</b>	-	-	-
<b>LSD [ng/ml]</b>	0, 31	0, 27	0,23
<b>Ethanol [g/l]</b>	0	0	0
<b>Methadone</b>	-	-	+

*Table 1. Toxicology results in urine of first and second patient during hospitalizations.*

Second patient, 16 years old, was hospitalized twice. First time she was found unconscious in the toilet of railway station, she had visible elbow puncture wounds, there was syringe, needle and brown empty bottle, probably with methadone next to her. She was admitted to Department of Toxicology and Cardiology. Teenager admitted that she got methadone from her boyfriend who is being treated for drug addiction. At the time of admission, the patient was emotionally disturbed, tearful, and periodically aroused. Patient had visible self-injured scars on her body. A patient was treated psychiatrically for a year due to depressive disorders. The patient during

the stay in the hospital admitted to having suicidal thoughts, had reduced self-esteem and reported problems in contact with friends. The electrocardiographic examination showed no significant changes. EDDP acid was found in her urine. Symptomatic treatment was carried out. Patient reported that she injected small amounts of methadone to feel the same as her boyfriend. The girl had a feeling that her boyfriend is very sick and suffering, and she wants to help him. To know how to help him, she decided to give herself methadone to feel what he felt. The patient's mother during the first stay also defended her boyfriend, she believed that he was sick. After two days of hospitalization girl was discharged home under mother's protection. Three months later, 16 years old patient was admitted to the hospital again, because of intoxication with psychoactive substances and self-injuries. Two days before the hospitalization, the patient tried to jump out of the window, from which she was stopped by her mother. At the time of admission the patient was conscious, circulatory and respiratory efficient and slightly agitated. The EDDP acid was found in her urine again. This time, her mother was understanding that her daughter's boyfriend is sick, the same is her offspring. After three days of hospitalization, she was transferred to psychiatric hospital for further therapy.

### **Discussion:**

Non suicidal self-injuries most often start in young adults aged 18-24 [7]. These kind of injuries may coexist with depressive symptoms [8] as was the case in our patients. We can certainly say, they were both having depressed mood, problems in contact with friends and family and lowered self-esteem.

Self-injuries are a manifestation of impulsivity and may be also connected with borderline personality [9]. We do not have data on the diagnosed behavioural disorder or mental illness in the described patients, but we can definitely consider the existence or beginnings of borderline personality disorder. This is indicated by the presence of the following symptoms in both patients who are also associated with this disorder, such as self-injuries, emotional lability, difficulties in contact with other people, intense and unstable relationships with men or substance use [10]. Both teenagers had problems with toxic relationship, they were devoted to dating addicted man, who was giving them opportunity to try drugs.

As we can see in table 1, first and second patient had EDDP acid in their urine, which is methadone's metabolite. Existence of this indicator is a sign of previously used methadone. Even if in urine of first patient and second patient (first hospitalization), there was no methadone, we can still claim, that patient were using this drug.

Addicted people easily manipulate other people, especially at a young age. The boy not only influenced two teenagers, but at first convinced to himself the mother of one of them. At first, drug use may seem interesting and attractive to teens. However, this path leads to ever greater demoralization of the young person. The second patient quickly convinced herself to boyfriend and using drugs. As she said at the beginning, as part of "empathy," she punctured her own needle in the elbow flexion, then she gave herself empty injections, then with a small amount of methadone, and then more substances - cathinones.

**Conclusions:**

We can indicate methadone use not only as methadone's level in urine, but also as EDDP, methadone's metabolite concentration in urine.

Every person with symptoms of behavioural disorder should be as fast as possible be examined by psychiatrist and psychologist, to avoid suicide attempts.

It is also important to educate young people about drug use and its consequences. Teenagers should also be aware of manipulations and be more careful about their relationships with other people. Parents and teachers should talk about it more often with children and teenagers to avoid poisoning, addiction or even death of young people.

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