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The oral health status and behaviour of methadone users in Lithuania

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SUMMARY

Objective. To find out the oral health of former heroin users in Lithuania, who are currently on methadone treatment.

Materials and methods. Subjects of research are patients, who were receiving methadone as a medication for heroin addiction. The research was done in Centre for Addictive Diseases in Lithuania. Oral health examinations were carried out using a probe and dental inspection mirror. The decayed-missing-filled (DMF) index and Silness Loe plaque indices were used. Patients received a questionnaire of smoking habits, dentist visits, daily dose of methadone and symptoms of hyposalivation. All the data was entered to Microsoft Office Excel 2016 and analyzed by SPSS 25.0 software.

Results. Study included 49 patients – 7 women and 42 men. The mean age of these subjects was 40.3±8.1(SD), ranging from 26 to 58 years old. Mean number of decayed, filled, missing and residual roots were 3.1±2.9(SD), 12.1±9.5(SD), 0.3±1.3(SD), 4.4±4.1(SD), respectively. Mean score of Silness Loe plaque index was 1.7±0.9(SD). The statistical difference ($p<0.05$) was found between patients DMF and their visits to the dentist. Participants who go to the dentist at least once per year (mean DMF 15.55±8.7(SD)) versus patients, who go less than one time per year/ urgent situation or do not visit dentists at all (mean DMF 21.7±7.3(SD)).

Conclusion. Study shows the poor oral health of former illicit drugs users who are on methadone-based addiction treatment.

Key words: methadone, oral health, medication-based therapy, opioid users, drug addiction.

INTRODUCTION

The consumption of illicit drugs is a big problem for users and our society. About 12 per cent of the total number of people who use drugs are estimated to suffer from drug use disorders. Majority of drug takers use more than one substance (1). According to European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) an increasing number of people overdosed from drug abuse in 2017. The number of annual overdoses has escalated over the past three years, in all age groups. One of the most vulnerable people in Europe are opioid users (2).

Illicit drugs are not only used for the sole purpose of getting "high" but are also used for treating purposes. A methadone clinic is a place where a people who are addicted to opioid-based drugs, such as heroin, fentanyl or other prescription painkillers, can receive medication - based therapy (3, 4). Methadone is given to patients as a long acting synthetic opioid, which causes the same chemical reaction in the body as heroin (5). It is recommended to use methadone as a long acting synthetic opioid treatment at least one year, but usually treatment takes about 2-4 years (6). As reported by State Mental Health Centre of Lithuania almost 600 patients received a methadone based addiction treatment in Lithuania in 2015, this number was a significant increase compared to previous years (7). Recent studies show that oral health of drug users is worse than that of the general population. Former heroin users who get methadone-based treatment have more decayed teeth and their periodontal status is poorer (8). This is due to several reasons: most of these patients do not go to dentists regularly, they need more information about proper oral hygiene, their diet is poor, majority of these patients cannot afford visits to dentists or products for oral care. Usage of methadone causes dry mouth – xerostomia (9). Because of xerostomia, there is a decrease the cleansing action – allowing easier formation of plaque. In some countries methadone is not sugar – free and

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its pH is acidic, so acidity in the mouth increases. Furthermore, the immune system of methadone users is weaker (8, 10).

Although illicit drug has a harmful influence for oral health, there is a lack of information about oral health of methadone consumers. To our knowledge, no research has been conducted about oral health of methadone users in Lithuania. The purpose of our research was to find out the oral health of former heroin users in Lithuania, who are currently on methadone treatment. The study objectives were to:

1) evaluate dental caries experience among the methadone users and

2) evaluate oral hygiene index of methadone programme participants, based on amount of plaque.

MATERIALS AND METHODS

Subjects of research are patients, who were receiving methadone as a medication for heroin addiction. The research was done in Centre for Addictive Diseases in Lithuania. The oral health of all of the patients was examined from December 2017 – February 2018.

The study protocol (number BEC-OF-37) was approved by the Kaunas Regional Biomedical Research Ethics Committee of the Lithuanian University of Health Sciences. All of the subjects signed informed consent before the study.

Data collection

Oral health examinations were carried out using a probe and dental inspection mirror. The decayed-missing-filled (DMF) index and Silness Loe plaque indices were used. Both indices were performed by one person.

Only patients who had at least 10 functioning teeth were included for the Silness Loe plaque index. The measurement of the state of oral hygiene by Silness-Löe plaque index is based on recording both soft debris and mineralized deposits on the following teeth (Figure 1). Missing teeth are not substituted. Each of the four surfaces of the teeth (buccal, lingual, mesial and distal) is given a score from 0-3 (Table) (11).

After the oral examination was conducted, patients received a questionnaire. The first part of survey was about smoking habits, dentist visits, daily dose of methadone. The second part of survey was about xerostomia symptoms with reference to Altarawneh *et al. (*12) survey.

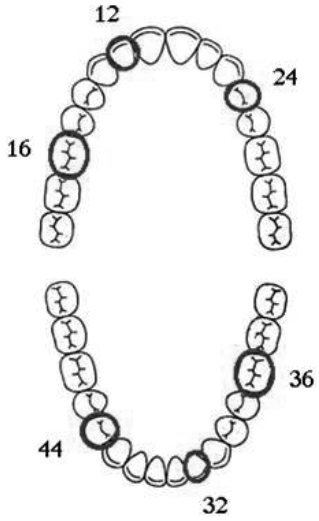

Fig. 1. Evaluate teeth by Silness Loe index

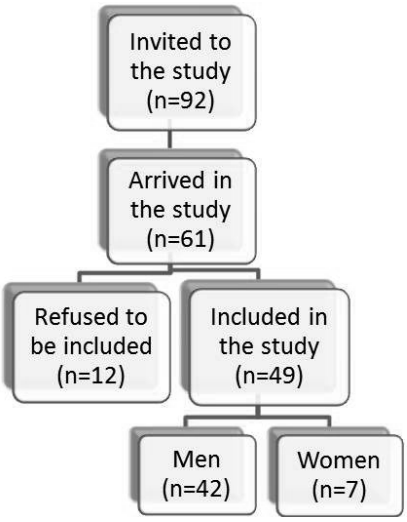

Fig. 2. Study sample

Participants were asked to evaluate dryness of the mouth, tongue, pharynx, lips and cheeks from 1 to 10 and answer questions related to hyposalivation symptoms they feel.

Statistical analysis

All the data was entered to Microsoft Office Excel 2016 and double checked. Database of the

Table. Criteria for Silness Loe index

Scores	Criteria
0	No plaque
1	A plaque adhering to the free gingival margin and adjacent area of the examined tooth. The plaque could be detected by using the probe on the tooth surface.
2	Moderate accumulation of soft deposits which can be seen with the bare eye.
3	Abundance of soft matter within the gingival pocket and/or on the tooth and gingival margin.

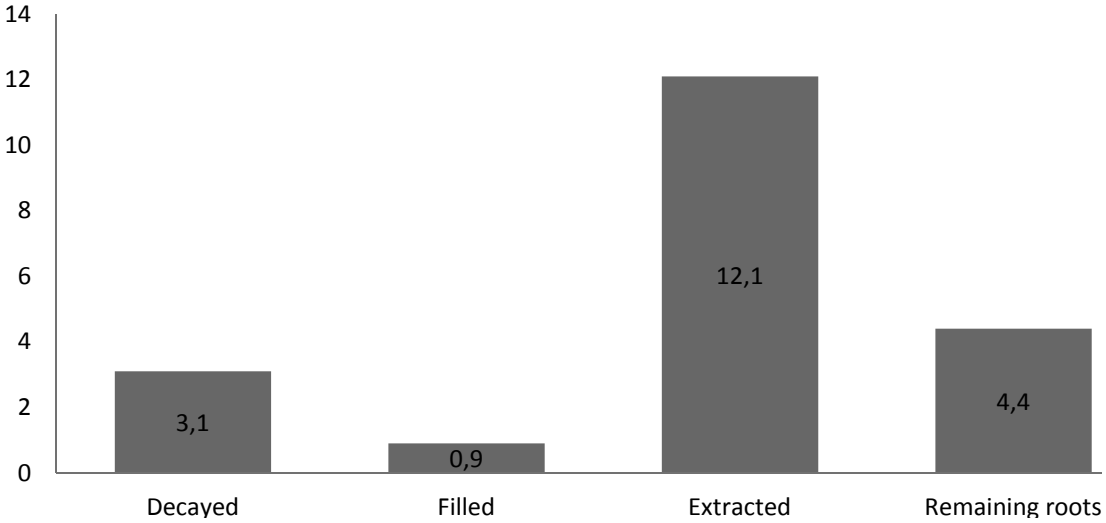

Fig. 3. Mean values of decayed, filled, extracted teeth and remaining roots

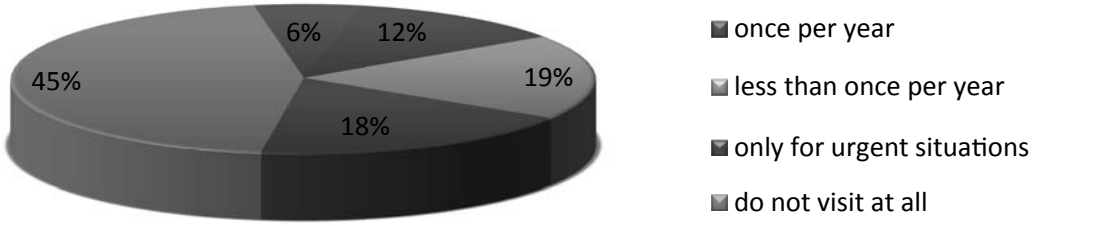

Fig. 4. Graph shows the regular visits frequency of patients

results was set up, and the data were analysed by independent t-test, or single factor analysis of variance. For statistical analysis we used SPSS (Statistical Package for Social Sciences) 25.0 software.

RESULTS

All patients (n=92) who are on methadone based treatment in Kaunas were invited, 61 arrived, however 12 refused to participate in research. This study included 49 patients – 7 women and 42 men (Figure 2). The mean age of these subjects was 40.3±8.1 (SD) years (range 26-58). The daily dosage of methadone was 8-100 ml, which was adjusted daily, and the mean maintenance dosage was 50 ml per day.

There was no statistical difference between men and women DMF index ($p>0.05$). The statistical difference ($p<0.05$) was found between patients DMF and their visits to the dentist. Participants who go to the dentist at least once per year (mean DMF 15.55±8.7 (SD)) versus patients, who go less than one time per year/ urgent situation or do not visit dentists at all (mean DMF 21.7±7.3 (SD)). Furthermore, patients, who are older than 40 years, had higher caries scores than younger than 40 years ($p<0.05$). 76% of participants answered that they do not feel dryness of the mouth. Mean score of dryness of the mouth, tongue, pharynx, lips and cheeks was 2.9±2.6 (SD) out of 10. Mean values of decayed, filled, extracted teeth and remaining roots are presented in the diagram (Figure 3). Mean score of Silness Loe plaque index was 1.7±0.9 (SD). 80% of respondents reported that they were smokers. Furthermore, a weak correlation ($r=0.202$) was found between smoking habits and Silness Loe plaque index of the participants.

Frequency about regular visits of participants to the dentist is shown in the diagram (Figure 4).

DISCUSSION

In literature, information about alcohol or tobacco products causes on oral health problems can be found in abundance. Although illicit drugs are used widely, there is very limited data available regarding their oral health status.

There are a number of possible reasons for the poor oral health of a former heroin user. Most of the patients do not visit dentists regularly or at all. A lot of patients go to dentist when they feel pain and their disease has already advanced (13). Most drugs users' lifestyle includes a bad die which contributes to the progression of oral diseases. As we know methadone in Lithuania is sugar – free and does not change level of sugars in the mouth, but most drug users tend to consume a large amount of sugary sodas (14). Methadone, some medicines and other illicit drug consumption causes xerostomia (13).

From study of Hajar Shekarchizadeh *et al.* (15) we can see that former heroin users do not brush their teeth regularly and almost 50% of patients

brush less than once a day and only 14% participants brush their teeth twice a day.

In this investigation, we found large number of residual roots. It shows that most of the patients did not even attempt to treat their teeth. We found that other reports have indicated even more residual roots – He Ma *et al. (*8) reported the 42.02% prevalence of residual roots in methadone user.

In our research, most of participants stated, that they do not feel hyposalivation symptoms and the quantity of saliva was not compromised. Most of them do not even know the outcomes of xerostomia. Xerostomia decreases spontaneous oral – self cleansing, it leads to better formation of the plaque. Formation of plaque has negative effect for hard and soft tissues of oral cavity. Furthermore, xerostomia complicates swallowing and speech and in turn worsens the quality of life (9).

In some countries methadone is not sugar free and its pH is acidic. It increases acidity in the oral cavity (13). There is evidence, that methadone users' immune system is weaker (8). It affects the progression of periodontal diseases, other opportunistic infections like candidiasis. Illicit drugs users are at an increased risk for the possibility of getting infected of HIV (16), this disease suppresses function of salivary glands (13, 17).

More than 50% of methadone users do not visit dentist regularly or at all. Most of them cannot afford dental treatment perhaps due to their lifestyle or because they see little importance in visiting the dentist. We found plenty of residual roots and only a few teeth with fillings – demonstrating the need for a high level of unmet dental treatment. Many opioid users suffer from psychological problems that are always accompanied by general anxiety and fear. Unusually, patients taking methadone may show a phobia for needles, especially in the hands of others and it increases the avoidance of treatment (10, 18).

Most of methadone users would like to have dental check-ups in their addiction centres. It is important to understand that oral health is an important part of a person's overall health not only psychologically but also to improve the quality of life and every effort must be done to improve it for addicted patients.

Patients should also have the availability to treat their teeth free of charge or at a lower cost because most of them do not have or do not make enough money. Many patients are not informed about less expensive treatments. Addiction centres should provide more information about the side effects of methadone. Of the large number of refused to participate patients, it can be concluded that patients are afraid or feel shame visiting a dentist. There is not enough research about methadone and oral health. Perhaps, even doctors do not have enough information about the effects of methadone on oral health.

CONCLUSION

This study shows the poor oral health of former illicit drugs users who are on methadone-based addiction treatment. It is obvious that these patients need additional care and advise on oral hygiene.

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