Journal of
Alcoholism & Drug Dependence

MSN, J Alcohol Drug Depend 2015, 3:3
DOI: 10.4172/2329-6488.1000204

Research Article Open Access

The Importance of Oral Health in Treatment Outcomes for the Chemically Dependent Population

Susan Katherine Kaiser MSN*

Family Life Center, Coon Rapids, 1930 Coon Rapids Blvd., Minnesota, 55433, USA

Abstract

Chemical dependency induces bone demineralization often resulting in (but not limited to) degraded oral health status. The omission of dental status assessment in chemical dependency, when initially evaluating the patient for needed treatment referrals, constitutes disregard of one of the many possible reasons for relapse [3]. Also, chemical dependency results in increased sensitivity to pain. Pain, frequently associated with dental infection can lead to medication-seeking behaviors and abuse of opioid medication (and medication classes). Advanced dental disease, and poor general health outcomes results in poor social outcomes. Poor social outcomes include: 1) return to substance abuse due to persistent anhedonia 2) negative outcomes of job-seeking as a result of cultural values and prejudice toward obvious lack of dental care in the form of missing, broken and rotting teeth, and finally, 3) possible death as a result of advanced dental infection. This writing explores substance-specific dental diseases, provides a dental assessment tool for triaging symptom presentation, and suggests treatment and policy changes to improve standard of care.

Introduction

The importance of dental care in sustaining of general health has gained national recognition (U.S. Department of Health and Human Services, 2000). The need for inclusion of dental status and dental referrals as part of chemical dependency

Treatment, as a standard of care, becomes evident when these two factors are combined:

1) The need for oral health maintenance for improved general health, and, [1-5].

2) Negative impact of chemical dependency upon oral health [6].

The critical need for dental assessments and referral for dental care in the treatment of the chemically dependent population has been cited in the professional literature and government reports for some time. For example, in 1996 it was stated in nursing textbook, Nursing Care of the Addicted Client, "Individuals being treated for chemical dependency must have greater access to thorough health systems assessments and referrals, including dental" [7]. In 2000, the importance of oral health was noted in the government health policy document entitled Oral Health in America [3], when then Surgeon General, David Satcher M.D, Ph.D., stated, " a silent epidemic of dental and oral diseases affects some population groups" [3]. Dr Satcher went on to state, "Individuals who are medically compromised or who have disabilities are at greater risk for oral diseases, and, in turn, oral disease jeopardizes their health" [3]. Dr. Satcher also noted that chronic periodontal disease is the most common inflammatory disease linked to system health and may be a contributing factor in diabetes, cardiovascular disease, respiratory disease, and pregnancy complications.

There is an increase of evidence-based holistic treatment recommendations, in the professional literature and government documents, which highlight the importance of oral-systemic health status in treatment and recovery from chemical dependency. This body of literature also includes terms such as, Health Literacy and includes a National Action Plan to Improve Health Literacy termed Healthy People [8]. Some of this evidence-based literature points to the critical need to include chemical dependency competencies in the educational preparation of *all* health care providers [9].

Health Literacy is a term recently used in the government document National Action Plan [8]. In the introduction to this extensive health policy document, the then assistant secretary for health, Howard H Koh, M.D., M.P.H., defined Health Literacy as the capacity to "obtain, process and understand basic health information and services needed to make appropriate health decisions." [8]. Dr. Koh went on to explain that "these goals and strategies will help support and achieve Healthy People objectives in health literacy and related areas, such as chronic diseases." Dr. Koh commented that Public Policy is increasingly focused on consumers managing their own health. He states this public policy assumes that," the American people have the necessary knowledge and skills to manage their own health needs, which contradicts what we know about health literacy in the United States" [8]. This document explores the importance of including oral health status assessments and dental referrals in the treatment of the chemical dependency population. Healthy People refers to a set of health objectives for the Nation to achieve over a decade with objectives informed by the best scientific knowledge designed to measure the Nation's health over time. Clearly, improved national health (Healthy People) requires improved Health Literacy. Accordingly, both professional care providers and the American people must improve Health Literacy.

Discussion

Chemically Dependent (CD) patients have numerous health system's needs, one of which is predictably depressed immune response, due to the CD, which is a factor making these patients more susceptible to succumbing to infection and disease [1] Research has established that psychoactive drugs have an immunosuppressant

***Corresponding author:** Susan Katherine Kaiser MSN, Family Life Center, Coon Rapids, 1930 Coon Rapids Blvd., Minnesota, 55433, USA, Tel: 7634-277-964; Fax: 7634-277-976; E-mail: skkaiser@msn.com

Received April 24, 2015; **Accepted:** May 18, 2015; **Published**: May 21, 2015

Citation MSN SKK (2015) The Importance of Oral Health in Treatment Outcomes for the Chemically Dependent Population. J Alcohol Drug Depend 3: 204. doi:10.4172/23296488.1000204

effect [10]. Therefore, appropriate dental care in the treatment of the Chemically Dependent population is one necessary treatment form which can help prevent relapse and contribute to recovery [4,11].

According to research published by AS Reece, drug addiction has a deleterious effect on dental health and these changes, associated with addiction, are rapid and severe [12]. Oral lesions can indicate more serious systemic problems such as: STDs, and Diabetes type II. Lesions of oral canker sores precede squamous cell carcinoma, herpes simplex type I, and periodontal disease. These oral lesions require a differential diagnosis by a dentist [13]. There is recent research, which connects chronic oral infections with: heart and lung disease, stroke, low birth weight, and premature births. Pregnant women, as a subgroup in the CD population, experiencing poor oral health status, often suffer: pregnancy with low birth weight, pre-term babies, cancer, heart disease, diabetes and depression [4]. Symptoms of oral pain may indicate abscessed tooth, dental caries or advanced periodontal disease, which, in turn, may mirror numerous system pathologies, complicate pregnancy, and, if ignored, even result in death.

Risks if Dental Disease not Assessed

Death can result from critical systemic-oral disease conditions. For example, if oral pain, swelling and infection, including abscessed teeth are ignored and allowed to progress without intervention, a condition termed Ludwig's Angina may result. Ludwig's Angina is a condition of swelling from suppurative inflammation adjacent to the sublingual and sub- maxillary space, which if progresses can create acute airway obstruction, resulting in suffocation and death [14,15] conclude that oral infection can also progress to cerebral abscess or encephalitis.

The word Angina is Latin for sharp, choking [16]. Vincent's Angina is similar condition located in the gingiva. Vincent's Angina is an infection caused by spirochetes, fusiform bacteria, or an overgrowth of normal oral flora. Vincent's Angina is known by various names, including trench mouth, and starts with a shallow ulcerated area of the gingival oral mucosa. The tissue becomes erythematous and edematous with a characteristic gray appearance. If the condition progresses, without dental intervention, the periodontium may be destroyed. Symptoms include: fever, anorexia, and fatigue. Vincent's Angina is a condition treated with a thorough dental debridement by a dentist or periodontist and antibiotic therapy [16]. Without treatment, Vincent's Angina can result in spread of the infection to other facial tissue; tooth loss and mortality may be as high as 70% [16].

Recent research is pointing to infections as etiology of exacerbated psychiatric behavioral symptoms (and symptoms of metabolic abnormalities), which can be confusing and difficult to diagnose. This factor can, in turn, create treatment delays and be an additional induction to relapse. An infection (including dental) can result in encephalitis, which can exacerbate psychiatric symptoms (including tics, obsessive compulsive disorder, lethargy, etc.) [17]. There is expanded knowledge reported in the professional literature in recent years about the effects of autoimmunity in neurological disorders, and the ability to discern and diagnose various forms of encephalitis [18]. Systemic inflammation, pathological processes, and auto immune response all have been shown to involve the composing parts of the Basal Ganglia, including the caudate, putamen, globus, globus pallidus, and substantia nigra [17]. Dale and Brilot identify this increased understanding about this neurological disruption consequent of infection as significant, as it allows the clinician to better discern etiology and treat appropriately. Better management of therapy for the modulation of deregulated immune system activity has been shown to affect certain neurotransmitters. In the case of the Basal Ganglia, the effective neurotransmitters are acetylcholine, dopamine, gamma-aminobutyric acid (GABA) and serotonin – the same neurotransmitters regulated by psychiatric medications. Knowledge of predictable medical/dental consequences of substance misuse is important in the competent treatment of the CD population, and for the realization of successful treatment outcomes.

Severity of sepsis is significant in determining its degree of impact on psychiatric status. The results of a study linking co-morbidity and psychiatric status, focusing on physical and long-term health sequel in survivors of severe sepsis, identified cognitive deficits in the skills of verbal learning and memory [14,15]. Specifically, hippocampal atrophy was found, implying outcome of short-term memory problems. Measurements in this 2013 study included brain morphology, electroencephalography, and analysis of cognition and psychiatric health as well as health-related quality of life.

Substance-Specific Etiology of Oral Disease

Substance misuse results in oral disease symptoms specific to the substance of misuse [19].

1) Tobacco use, specifically chewing tobacco, places the user at higher risk for oral cancer [20]. Tobacco use has been linked to long-term health problems: musculoskeletal pain, rheumatoid arthritis, and fibromyalgia and smokeless tobacco is linked to activity reduction and sleep disorder [21].

2) Alcohol misuse is a risk factor for oral and pharyngeal cancer [22,23]. Regular alcohol consumption is a risk factor for oral infections, particularly periodontal infections. Periodontal infections cause destruction to the supporting tissues of the teeth and systemic diseases [24].

3) Opiate abusers have higher oral disease levels compared to alcohol abusers [25]. Studies have determined that heroine abusers exhibit more missing teeth and poorer dental health than those in the general population. Explanations for this finding include: Opioid use negatively affects the immune system rendering opioid users more susceptible to dental disease. Heroine's effect on the neuro-regulatory center stimulates craving for sugar [11] with deregulation including high sugar and low fiber dietary intake, resulting high incidence of dental caries: and negative health behaviors such as smoking, poor nutritional status and presence of chronic diseases. These factors result in increase of tooth loss, especially on the lower arch.

4) Cannabis is a powerful carcinogen, associated with dysplastic changes and premalignant lesions in the oral mucosa. Cannabis users are more prone to oral infection, possibly due to the immunosuppressant effects of the substance [26]. According to Cho et al, cannabis users have generally poorer oral health status then non-users, with higher rate of decayed, missing and filled teeth scores, higher plaque scores and less healthy gingiva with side effect of xerostomia (dry mouth). Chronic use of Cannabis results in chronic inflammation of the oral epithelium and leukoplakia, progressing to neoplasia. Cannabis related oral cancer usually is observed on the anterior floor of the mouth and tongue. Cannabis acts as a carcinogen by mechanism of aromatic hydrocarbons, benzopyrene and nitrosamines in the amount of 50% greater than the same amount of tobacco smoke. Gingival hyperplasia and concurrent alveolar bone loss has been noted in chronic cannabis users [26].

5) Cocaine misuse has many oral facial effects, including:

perforation of the nasal septum and palate, gingival lesions, and erosion of enamel. Furthermore, recent use of cocaine complicates dental treatment when epinephrine-containing local anesthesia is needed and epinephrine-containing hemostatic agents (combined with recent cocaine use) may create an emergency by inducing cardiac arrhythmias and acute hypertension [27].

6) Methamphetamine changes the physiological process of centrally acting neurotransmitters in the brain. Methamphetamine (chronic) use results in neurotoxicity and neuro-degredation. These changes may also result in deleterious oral effects and rampant caries [28]. Methamphetamine also results chronic xerostomia, secondary to sympathetic nervous system activation. This absence of protective saliva combined with the substance abuse induced carbohydrate craving and high sugar intake results in dental caries. These behavior patterns and factors (combined with methamphetamine use) are followed by a pattern of dental caries involving buccal and interproximal surfaces of anterior teeth [29]. Abuse of methamphetamine also results in bruxism, or teeth grinding and dental erosion [30]. Often CD patients using methamphetamines have undiagnosed oral and other diseases: HIV, Hepatitis B (HBV), Hepatitis C (HCV) and other viruses [31].

7) Ecstasy has similar dilatory effects as methamphetamine [32].

A Comprehensive Plan of Action

Treatment centers with credentialed care providers in the specialty of addiction are officially recognizing the numerous complex medical/dental/psychiatric and social challenges of this population. Although it seems self-evident that medical/dental (nutritional) psychiatric/social assessment is needed for this treatment population [33], often the most elementary assessments are not included [34]. Even more rare, in the majority of outpatient treatment centers, is the provision of staff with the expertise to address all of the complex medical/dental/psychiatric/social assistance needs of the CD patient population.

Professionals in all treatment specialties are often confronted with evidence of substance misuse and must be prepared to address the subject by linking the clinical evidence to the substance misuse [35].

Dental Assessment Tool

An oral status assessment, including a short dental status questionnaire, would be an efficient method to triage need for dental referral. Without using an intrusive tongue blade, oral status can be initially assessed by visual impression. Visual assessment can determine the presence of oral plaque, missing teeth with obvious decay, especially on anterior teeth [36] Visual assessment along with a short dental questionnaire: recent nicotine use, dietary habits, and presence of dental pain can help to construct a priority of care list [36]. An immediate referral should follow report of dental pain.

The essential questionnaire items are:

1) Presence of pain/facial swelling,

2) Vital signs including fever,

3) Dietary review including amount of habitual intake of sugar & soda pop/day,

4) Date of last dental exam,

5) Daily eating routine,

6) Method of dental hygiene habits + visual assessment of dental status.

Highest referral priority would include: positive response to # 1 & 2. Complaint of oral pain with facial swelling combined with malaise and fever should be designated highest priority. Positive response for questions 3-6 would also indicate need for: dental referral, dental and nutritional education and recommendation for an annual dental evaluation.

Complaint of oral pain signals urgent status. A referral for a professional dental evaluation as soon as possible is indicated, especially complaint of pain combined with presence of fever. Complaint of pain should *not* be ignored, and *referral* to a professional dentist for further assessment is the means by which this presentation should be triaged.

Both CD treatment providers and professional dentists should follow the recommendations for pain treatment for the CD population [17]. Treatment of pain in the CD population should include cognizance that this population is pain sensitive [37]. Heightened receptivity to pain is probably linked to hypersensitive receptors created by the substance abuse [38]. Pain, which is resolvable, should be treated according to protocol, and short-term. And, if the professional dentist provides pain medication with treatment, the CD patient should follow the directive without undue scrupulosity [39].

The chemical dependency patient faces many obstacles to care, such as: 1) financial constraints making dental care inaccessible, 2) prejudice of care givers creating misperceptions about drug-seeking behaviors when complaining of pain, 3) experience of dental pain requiring competent evaluation combined with preceding factors, 4) abnormally high pain response, due to substance misuse combined with consequent of physiological brain changes [40]. These facts also further the cycle of poverty and deprivation.

Cultural values are influenced by oral health and facial norms. Missing and decayed teeth create the appearance of deprivation, which is not attractive and is associated with the cycle of poverty, and does not aid first impressions and job-search outcomes. More concerning are the extremes those with missing and broken teeth are willing to reach in order to compensate. It is not uncommon for this population to use Krazy Glue to re-attach broken teeth, or use rubbing alcohol to treat infection thus inducing burns to the gum and exacerbating oral infections [41].

Summary

The disease of chemical dependency must be accurately diagnosed and included on Axis I of the DSM-V because all treating professionals must recognize and include the CD diagnosis in their treatment decisions. Increased collaboration between professionals of treating specialties is required for competent treatment of the chemically dependent population, as a norm, and for better health care outcomes [17].The disease of chemical dependency is so socially ubiquitous that the professional must be able, through educational preparation, to recognize the predictable medical/psychiatric/dental disease processes of chemical dependency in order to provide early competent intervention. As Healthy People gain more Health Literacy, the importance of dental care would be expected as part of basic health services provided.

Conclusion

Professionals must obtain oral assessment competencies for improved treatment outcomes of all populations. This competency is especially important in the treatment of the CD population because

of factors and behaviors which contribute to oral systemic disease induction: diminished immune response, substance-induced behaviors such as poor dietary habits resulting in demineralization of the skeletal system, and behaviors that increase exposure to communicable diseases which often manifest in the mouth [42]. There are some dental triaging tools available in the professional literature, including this writing, as a means to accomplish this requirement.

It is unethical for the professional care provider to not be prepared to address a disease process as ubiquitous, destructive and potentially lethal as chemical dependency. Earlier and more appropriate treatment interventions will lighten the financial burden to the social support system, contributing to improved treatment outcomes and prevention of relapse. Consistent advocacy for the chemically dependent patient would benefit the chemical dependency patient, the patient's family, the social support system and the entire Government Health Policy Program.

References

1. Naegle MA, D'Avanzo CE (2001) Addictions and Substance Abuse. Upper Saddle River NJ: Prentice Hall.
2. Kaiser S, Prendergast K (2008) Nutritional Links to Substance Abuse Recovery. Journal of Addictions Nursing 19: 125-129.
3. U.S. Department of Health and Human Services. (2000). Oral Health in America. A Report of the Surgeon General: U. S. Department of Health and Human Services, National Institute of Dental and Craniofacial Research, National Institutes of Health.
4. Clemmens DA, Kerr AR (2008) Improving oral health in women: nurses' call to action. MCN Am J Matern Child Nurs 33: 10-14.
5. Garfield JB, LD, Yucel M (2014) Anhedonia in Substance Use Disorders: A Systamatic Review of it Nature, Course and Clinical Correlates. Aust. N ZJ Psychiatry 48: 36-51.
6. Saini GK, Gupya ND, Prabhat KC (2013) Drug Addiction and Peridontal Disease. The Journal of the Indian Society of Periodontol Diseases 17: 587-591.
7. Allen KM (1996) Nursing Care of the Addicted Client. Philadelphia, PA: Lippincott.
8. U. S. Department of Health and Human Services. (2010). National Action Plan to Improve Health Literacy. Washington, D.C.: Office of Disease Prevention and Health Promotion.
9. Brondani MA, Pattanaporn K (2013) Integrating issues of substance abuse and addiction into the predoctoral dental curriculum. J Dent Educ 77: 1108-1117.
10. Volkow N (2011) Comorbidity: Addiction and Other Illnesses. Bethesda, Maryland.
11. Fan J, Hser YI, Herbeck D (2006) Tooth Retension, Tooth Loss and Use of Dental Care among Long-term Narcotics Abusers. Substance Abuse 27: 25-32.
12. Reece AS (2007) Dentition of Addiction in Queensland: Poor Dental Status and Major Contributing Drugs. Australian Dental Journal 52: 144-149.
13. Percy MS (2008) It's More Than Dental Caries. The American Journal of Maternal/Child Nursing 33: 26-31.
14. Semmeler A, Widmann CN, Okulla T, Urbach H, Kaiser M, et al. (2013) Persistent Cognitive Impairment, Hippocampal Atrophy and EEG Changes in Sepsis Survivors. Journal of Neurology, Neurosurgery, and Psychiatry 84: 62-69.
15. SemmelerA, WC, Okulla T, Urbach H, Kaiser M, et al. (2013) Persistent Cognitive Impairment, Hippocampal atrophy and EEG changes in sepsis survivors. J Neuro Neurosurg Psychiatry 84: 62-69.
16. Carlson DS, Pfadt E (2011) Vincent and Ludwig angina: two damaging oral infections. Nursing 41: 55-58.
17. Dale RC, Brilot F (2012) Autoimmune Basal Ganglia Disorders. Journal of Child Neurology 27: 1470-1481.
18. Ramanathan RS, Mohammad SS, Brilot F, Dale RC (2013) Autoimmune Encephalitis: Recent Updates and Emerging Challenges. Journal of Clinical Neuroscience 21:722-730.
19. McGrath C, Chan B (2005) Oral Health Sensations Associated with Illicit Drug Abuse. British Dental Journal 12: 159-162.
20. Warnakulasuriya S, Sutherland G, Scully C (2005) Tobacco, Oral Cancer, and Treatment of Chemical Dependence. Oral Oncology 41: 244-260.
21. Riley JL, Tomar SL, Gilbert GH (2004) Smoking and Smokeless Tobacco: Increased Risk for Oral Pain. Journal of Pain 5: 218-225.
22. Ashe TE, Elter JR, Southerland JH, Strauss RP, Patton LL (2005) North Carolina dental hygienists' assessment of patients' tobacco and alcohol use. J Dent Hyg 79: 9.
23. Miller PM, Ravenel MC, Shealy AE, Thomas S (2006) Alcohol Screening in Dental Patients: The Prevalence of Hazardous Drinking and Patients' Attitudes about Screening and advise. The Journal of the Americal Dental Association 137: 1692-1698.
24. Haheim LL, Olsen I, Ronningen KS (2012) Oral Infection, Regular Alcohol Drinking Pattern, and Myocardial Infarction. Medical Hypotheses 79: 725-730.
25. Johnson D, Hearn A, Barker D (2008) A Pilot Survey of Dental Health in a Group of Drug and Alcohol Abusers. European Journal of Prosthodontics and Restorative Dentistry 16: 181-184.
26. Cho CM, Hirsch R, Johnstone S (2005) General and oral health implications of cannabis use. Aust Dent J 50: 70-74.
27. Brand HS, Gonggrijp S, Blanksma CJ (2008) Cocaine and oral health. Br Dent J 204: 365-369.
28. Klasser GD, Epstein JB (2006) The Methamphetamine Epidemic and Dentistry. Gen Dent 54: 431-439.
29. Cretzmeyer M, Walker J, Hall JA, Arndt S (2007) Methamphetamine Use and Dental Disease: Results of a Pilot Study. Journal of Dentistry for Children 74: 85-92.
30. Donaldson M, Goodchild JH (2006) Oral Health and the Methamphetamine Abuser. American Journal of Health-System Pharmacy 63: 2078-2082.
31. Shaner JW, Kimmes N, Saini T, Edwards P (2006) "Meth Mouth": Rampant Caries in Methamphetamine Abusers. AIDS Patient Care and STDs 20: 146-150.
32. Brand HS, Dun SN, Nieuw Amerongen AV (2008) Ecstasy (MDMA) and oral health. Br Dent J 204: 77-81.
33. Kaiser S (2012) Psychiatric and Adiction Consultation in Critical Care. Critical Care Nursing Clinics of North America 24: 9-26.
34. Substance Abuse and Mental Health Services Administration. (2005). Results from the 2004 National Survey on Drug Use and Health: National Findings. Rockville, MD: U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration.
35. Dyehouse J, Sawyer SM (1998) Brief Intervention After Alcohol-related Injuries. Nursing Clinics of North America 33: 93-104.
36. Morio KA, Mashall TA, Qian F, Morgan TA (2008) Comparing Diet, Oral Hygiene and Caries Satus of Adult Methamphetamine Users and Nonusers. Journal of the American Dental Association 139: 171-176.
37. Compton P, Athanasos P (2003) Chronic Pain, Substance Abuse and Addiction. Nurse Clinical North America 38: 525-537.
38. Mehta V, Langford RM (2006) Acute Pain Management for Opioid Dependent Patients. Anesthesia 61: 269-276.
39. Salinas A, Wilde JD, Maldve RE (2006) Ethanol Enhancement of Cocaine- and Amphetamine-Regulated Transcript mRNA and Peptide Expression in the Nucleus Accumbens. Journal of Neurochemistry 97: 408-415.
40. Pelc I, Verbanck P (2006) Hard Use of Soft Drugs. Bulletin et Memoires de l'Academie Royale Medecine de Belgique 161: 450-457.
41. Heuvel KV (2008) Dental Decay: The Hidden Health Crisis.
42. Committee on Crossing the Quality Chasm. (2006). Improving the Quality of Health Care for Mental and Substance-Use Conditions: Quality Chasms Series Chapter 5. Paper presented at the The 2006 Institute of Medicine Report Recommendations.