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“Multiple Sclerosis: Impact on Oral Hygiene, Dysphagia, and Quality of Life”

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Summary of the Article

Francesco Covello, Giovanni Ruoppolo, Camilla Carissimo et al conducted a study to assess the oral health, dysphagia, and quality of life of patients suffering from Multiple Sclerosis. The study took place in the “Multiple Sclerosis” clinic of the Department of Neurology and Nervous System Diseases of “Policlinico Umberto I” of Rome, from November 14, 2018, to July 24, 2019, and was published by the International Journal of Environmental Research and Public Health and belongs to the special issue “Oral Pathologies and Their Impact on Public Health”. <https://www.mdpi.com/1660-4601/17/11/3979/htm>.

For this study, 101 MS patients aged 12 to 70 (47 men, 54 women) were chosen, and they were given three questionnaires to complete anonymously: an oral hygiene exam, DYMUS (Dysphagia in Multiple Sclerosis), and IOHIP-14 (Italian version Oral Health Impact Profile). Pathological problems such as gingival inflammation, xerostomia, dysphagia, neuralgia, and dysarthria were identified by the examination of the questionnaires. According to the findings of this study, among MS patients, the pathological problems mentioned previously that negatively impact quality of life, are present in a significant number of patients. Therefore, the authors concluded it is feasible to explore and define how the functions of a medical team consisting of a dentist, otolaryngologist, and dental hygienist are critical in dealing with the oral disturbances caused or exacerbated by MS.

Article Information

The title of this article is “Multiple Sclerosis: Impact on Oral Hygiene, Dysphagia, and Quality of Life”, by Francesco Covello, Giovanni Ruoppolo, Camilla Carissimo et al. The article was published by the International Journal of Environmental Research and Public Health and belongs to the special issue “Oral Pathologies and Their Impact on Public Health”. The article was published June 4, 2020. The link to the abstract is: <https://doi.org/10.3390/ijerph17113979>. The authors state there are no sponsors or conflicts of interest.

Study Analysis

Type of study

This study is known as an Observational Case Control study. It is non-experimental and uses a representative sample of patients ranging from age 12 to 70 who suffer from MS. The study took place in the “Multiple Sclerosis” clinic of the Department of Neurology and Nervous System Diseases of “Policlinico Umberto I” of Rome, from November 14, 2018, to July 24, 2019.

Study Purpose

The authors conducted this study to examine the oral health status, dysphagia, and wellbeing of MS patients, and to highlight how proper oral hygiene in MS patients can play a vital role in the management of MS-related problems and contribute to the patient's overall well-being. The authors knew that MS causes debilitating pain in the head and neck regions, as well as decreased manual dexterity in its patients. What the authors wanted to gain from this was a better understanding of the patient's oral care regimen and how these MS-related problems directly affect the patient's ability to perform such tasks.

Experimental Design

In this study, 101 patients aged between 12 and 70 (47 males, 54 females) suffering from MS were picked. Patients were selected from November 14, 2018 to July 4, 2019, within the “Multiple Sclerosis” clinic of the Department of Neurology and systema nervosum Diseases of “Policlinico Umberto I” of Rome.

Three questionnaires were provided for the patients selected to completed anonymously. The three questionnaires were an oral hygiene test, DYMUS (DYsphagia in MUltiple Sclerosis), and IOHIP-14.

The questionnaire concerning the patients' oral hygiene habits and its quality was specifically tailored and aimed to gauge many aspects. The aspects are: The frequency of the oral hygiene daily care, the self-evaluation of the manual skills used while performing oral hygiene care, the tools used for it, the presence of symptoms associated with disease, xerostomia, dentinal

sensitivity, the frequency of dental check-ups or skilled oral hygiene sessions, and the condition of prosthetic devices, such as dentures.

The second form, the DYMUS, screens for the analysis of the presence of dysphagia. Its developed as ten queries that solely enable positive or negative answers associated with the current health standing of the patient. Each question is made to analyze the characteristics of dysphagia associated with the body's process of solid or liquid substances. Finally, IOHIP-14, which stands for 14 things Oral Health Impact Profile—Italian version, is a subjective indicator used to assess how the patient's oral health influences their standard of life. In OHIP-14, that may be a synthesis of OHIP-49, fourteen queries were extracted from the initial forty-nine, to induce a quicker and additional intuitive preformed type. By using this model, the patient can self-evaluate their perception of their oral health standing by distribution values from zero to four (0 = never; one = nearly never; a pair of = sometimes; three = quite often; four = terribly often). The goal of the analysis of this model is to research seven basic aspects: purposeful limitations (chewing difficulties, tasting worsened ability), physical pain (dentinal sensitivity, muscular tension sensation), psychological discomfort (self-awareness), physical incapacity (change of diet), psychological incapacity (reduced focusing ability), social incapacity (avoiding social interaction, inflicting interruption throughout meals), and handicap.

Descriptive statistics are used to compute every item. Therefore, the share of participants' answers to every item was calculated. The data gathered was analyzed using SPSS 14.0 for Windows (SPSS INC., Chicago, IL, USA). Lastly, Fisher's exact test was used to determine if there were any distinctions between men and women that were statistically significant.

Results

For the "Oral Hygiene Habits and Its Quality" questionnaire, 58% of the patients reported they brushed twice daily. Fifty percent of the patients reported their manual skills is good, while only 26% say it is sufficient. Also, 71% of the patients reported using a manual toothbrush, while 13% say they use an electric toothbrush. Only 12% of the patients use floss daily, opposed to 52% who almost never use it. Also, only 8% state they brush their tongue, while 51% state they almost never brush their tongue. Twenty six percent of patients have a denture, and of those

26%, only 19% clean it daily. As far as mouthwash, 7% reported daily use, 36% sometimes, and 34% almost never. Fifty eight percent of the patients experience gum bleeding when brushing. 8% of the patients suffered from dental mobility of different grades. Dental sensitivity to thermal and/or chemical stimuli was observed in 40% of the patients, with 18% describing it as “strong” sensitivity. Xerostomia was observed in 62% of the patients. With regards to paresthesia on the lips and/or gums, 65% never felt any numbness in these areas, while 30% experience the sensation at times. Only 6% of patients reported regular dental treatments every 6 months and 24% do checkups every 6-12 months. Forty three percent have them done less often (about every 12-18 months), and 27% reported no dental check-ups for more than 18 months. Fisher’s Exact test was used to statistically analyze the results and found that the differences between male and females are non-significant.

For the DYMUS questionnaire, of the 101 MS patients, 25% of the respondents had difficulty swallowing food and sensation of food stuck in their throats when swallowing, and 21% had difficulty swallowing liquids. Twenty four percent of respondents had coughing or asphyxia sensation when swallowing solid and liquid foods. A sensation of “globus pharynges” when swallowing was reported by 26% of patients. Also, 26% reported the need to sip several times when drinking. The need to cut food up in smaller pieces before swallowing was reported by 21%, while the need to swallow several times before ingesting was reported by 22%. Weight loss was reported in 28% of patients. Fisher’s Exact test was used to statistically analyze the results and found that the differences between male and females are non-significant.

For the IOHIP (Italian Oral Health Impact Profile), difficulty in pronouncing words was experienced at times by approximately 26.8% of the patients. Worsening taste perception was noticed in 12% of patients, and 16% of patients experience pain in the mouth, opposed to 77% who say they do not. About 22% of patients reported a sensation of muscular tension; 10% experiencing it very often, and 5% frequently. Eight percent of patients stated they need a break in their meal due to symptoms of dysphagia. As far as the patient’s diet, 14% reported unsatisfaction with their diet. Difficulties relaxing after craniofacial disturbances were reported “sometimes” by 21% of the patients, and “more often” in 12%. Irritability caused by conditions of the oral cavity were reported, where 21% “sometimes” feel irritable, and 17% have trouble working due to the disturbance. This factor greatly contributes to the 23% of patients who

reported their quality of life less satisfying; with 2% believing they are totally incapable of practicing any activity. Fisher's exact test was used to statistically analyze the data and found there to be a significant difference between males and females ONLY in their ability to relax after craniofacial disturbances. The p value is 0.0349.

Conclusion

The authors have found that MS is a condition that causes motor deficits, cognitive dysfunctions, craniofacial disturbances, and a degradation of functional skills, leading to disability in the afflicted. This causes the patient to have a lower quality of life, which can negatively impact the oral health of the patient. In previous literature, studies report 5 to 15% of patients who suffer from MS experience gum bleeding, and in this study, 9% reported bleeding gums. Inefficient oral hygiene could be the result of the poor manual skills associated with MS. Therefore, the authors have concluded that a team of health care professionals, specifically the physician, dentist, otolaryngologist, and dental hygienist work together to create a program of therapies specifically tailored to the individual suffering from MS.

Since 40% of the patients reported halitosis, the authors proposed that doing a differential diagnosis among pseudo halitosis, halitophobia, and physiological halitosis would be appropriate. Also, more studies pursuing and analyzing craniofacial disturbances seen throughout the progression of MS would be beneficial to acquire statistically significant data.

Your Impression

I believe this study is important to help dental clinicians treat patients who suffer from MS. I personally have treated a patient who suffers from MS. Fortunately, the patient was in the early stages of the disease, so cognitive and motor deficits were not severe. However, the patient did complain of their hand shaking and feeling weak, impacting their ability to properly brush their teeth. Also, my patient experienced craniofacial disturbances such as twitching, and jaw pain when opening and closing her mouth (TMJ), like many people in this study have reported they experience. This study highlights most, if not all, the problems MS patients face daily when it comes to oral hygiene, which is very important for the clinician to know and understand.

A patient may state they brush once a day or never floss, and we might have a preconceived notion that the patient is lazy; not realizing that the debilitating effects of MS have

made it extremely difficult for the patient to do activities we feel are simple. As shown in the study, 72% of patients reported use of a manual toothbrush, yet only 50% of patients believe their manual skills is good. This means that there are a significant number of patients with MS who use a manual toothbrush that are not adequately brushing their teeth. Using these statistics, we can educate patients on switching to an electric toothbrush and properly show them how to use it, that way the toothbrush will do all the cleaning for them. In addition, their manual skills are progressively decreasing due to the progression of the MS, so the earlier we introduce electric toothbrushes, the better.

This article was abundant in useful information. However, I would like to know the demographic information of these patient. Access to information and proper health care has always been an issue for patients of a lower class or minority, so I would have liked to have known this information to see whether patients of different backgrounds suffer the same from MS, or if environmental factors play a role. That would defeat the purpose of the anonymity, but knowing can allow health care professionals to target and aid certain individuals who are more susceptible to poor oral health due to their MS.