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Sexual Abuse history in Tension-Type headache and CMDs subjects is associated with longer pain duration and use of greater amounts of medication.

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Abstract
Introduction: *During the last decade the current literature has established a relationship between a history of sexual abuse and various types of headaches. However many parameters of such relationship are not well understood.* ***Goals:*** *Compare Craniomandibular Disorders and Tension-Type Headache subjects with history of sexual abuse with those without, regarding use of medication and pain duration.* ***Methods:*** *Clinical examination, palpation of muscles and joints, criteria for Craniomandibular Disorders and Tension-Type headache, questionnaires to gather information about bruxing behavior and use of medication, and an instrument to evaluate sexual abuse history in childhood or adolescence. Medical records of 50 subjects with Craniomandibular Disorders, Tension-Type Headache and no sexual abuse history and 30 medical records of subjects with Craniomandibular Disorders, Tension-Type Headache and history of sexual abuse were retrospectively evaluated regarding duration of headache and previous use of medication.* ***Outcome:*** *Mean age in the Craniomandibular Disorders subgroup with tension- type headache and no history of sexual abuse was about 28,5 (SD=11,5, range=14—56) and 31,4 (SD=12,5, range=18—66) in the Craniomandibular Disorders, Tension-Type Headache and sexual abuse history: Mann-Whitney statistics (p=0,22) indicating that age was not significantly different when these two subgroups were compared. Pain duration (years) was about 3,5 (SD=3,0, range=1-12) in the Craniomandibular Disorders + TTH and no sexual abuse history as compared to 9,5 years (SD=9,3, range=1-29) in the Craniomandibular Disorders + Tension-Type Headache and sexual abuse history: Mann-Whitney statistics (p<0,006) indicating that the difference in pain duration was longer in the sexual abuse history subgroup. Mean in past/present medications use was about 3,0 (SD=2,0, range=0-7) in the Craniomandibular Disorders, Tension-Type Headache and no history of sexual abuse as compared with 4,2 (SD=2,3, range=0-10) in the Craniomandibular Disorder + Tension-Type Headache + sexual abuse history subgroup: Mann-Whitney statistics (p<0,02), indicating that there was a statistically significant difference in past/present medication use when the two subgroups were compared.* ***Conclusion:*** *Craniomandibular Disorders with Tension-Type Headache and a history of sexual abuse subjects demonstrated longer duration of Tension-Type Headache and use of larger amounts of medication.*

Keywords: *Craniomandibular Disorders. Tension-Type Headache. Medication. Chronic Pain. Pain Duration.*

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I. Introduction

Craniomandibular Disorders (CMDs) are terms used in the dental and medical specialties to describe a set of signs and symptoms usually associated with pain and dysfunction in the masticatory muscles and temporomandibular joints (TMJs) usually of musculoskeletal origin[1] The most frequently reported signs and symptoms in subjects with CMDs include a complaint of pain, tenderness to palpation, joint noises[1], acoustic symptoms and disturbances in the quality of jaw movements[2]. An etiological connection between CMDs and psychological or psychiatric disorders was proposed early many decades ago[2].. Painful CMDs are etiologically viewed as a multidimensional process involving a number of social and psychological factors which contribute to greater severity and longer duration of pain[3].

Tension-Type Headache (TTH) is one of the most prevalent headaches both in the general population and in headache clinics. Further, TTH is not disabling and rarely treated or self-treated[4]. This is so true that

TTH is usually described as mild or moderate and many patients do not seek treatment for this disorder. TTH is usually characterized by bilateral, mild or moderate pain occurring in the anterior part of the head with episodes reported in the neck, sometimes with nausea and rarely with vomiting. Emotional stress and other psychological factors are clearly important etiologic agents of TTH. TTH can be classified as episodic and chronic. Simple analgesics such as nonsteroidal anti-inflammatory medications, including ibuprofen and naproxen are commonly used by the pain practitioner but the preventive treatment of TTH is more complicated [4].

Sexual Abuse (SA) is now considered as one of many possible psychological factors in the etiology of chronic pain, including headache and associated excessive care utilization in females[4]. Head pain seems to be more common in females who report both physical and sexual abuse[4]. Nonetheless, the mechanisms that lead or contribute to headache of longer duration are poorly understood but are probably related to greater anxiety, depression, utilization of health services and drug abuse. Prevalence rates of various types of abuse tend to be the highest among patients in pain clinics, more specifically in those subjects with unexplained and/or recalcitrant headaches[4]. Because the relationship between TTH, a history of sexual abuse (SAH), pain duration and use of medication, are poorly understood, this investigation was designed to:

1.Evaluate pain duration in a selected subgroup of subjects presenting with TTH and SAH as compared to a TTH no SAH subgroup;

2.Test the hypothesis that a SAH in TTH subjects is associated with greater amount of current or past use of medication.

3.Use the current literature to discuss the likely mechanisms associated with longer duration of pain in TTH and SAH subjects.

II. Material and Methods

Sample

CMDs and bruxing behavior (BB) subjects with or without headache referred consecutively to an Orofacial Pain (OFP) facility at the University of Gurupi School of Dentistry are usually comprehensively evaluated using a standardized clinical protocol described as follows: Taking the history of the chief complaint, palpation of joint and muscles to search for areas of tenderness and presence of inflammation and/or trigger points, use of questionnaires to evaluate clinical signs and symptoms characteristics of CMDs, use of a specific questionnaire, self- report and clinical examination to evaluate the severity and type of BB (Diurnal, nocturnal, mixed), a special questionnaire to evaluate TTH, migraine, combination headache, occipital neuralgia and myofascial pain, use of psychological tests including the Taylor Manifest Anxiety Scale, the Beck Depression Inventory for depression, the Hostility Scale, the Sanders and Becker Lausen instrument[6] to evaluate physical emotional and sexual abuse and other psychological tests. The goal of such comprehensive evaluation is to gather accurate clinical data based on sound clinical and scientific criteria already accepted by the scientific and clinical community. Once subjects are comprehensively evaluated, their clinical records are immediately stored in a database to be used in future studies.

This database was used recently to consecutively and orderly retrieve 50 clinical records from subjects demonstrating signs and symptoms of CMDs, BB and TTH with no SAH and 30 clinical records from subjects with signs and symptoms of CMDs, TTH, BB and SAH. Even though the frequency of SAH in subjects presenting with CMDs and BB is relatively high, only 30 subjects presenting with CMDs, BB, TTH and SAH were available in the database. Consequently, 50 clinical records from subjects with CMDs, BB, TTH, no SAH and 30 from subjects with CMDs, BB, TTH and SAH were analyzed and used to carry out the current investigation.

Criteria for CMDs: A complain of pain in the masticatory muscles, TMJs, self – report of joint noises confirmed by clinical examination, difficulties to perform normal jaw movements, tenderness to palpation and headache of musculoskeletal origin.

Criteria for TTH: Pain reported in the frontal, temporal and cervical regions described as bilateral, constant, dull, pressing or constricting, lasting hours and sometimes days. Pain described as mild or moderate (moderate more frequent than mild) and rarely severe, occasional reports of nausea but no vomiting.

Criteria for SAH: One of more items of the Child Abuse and Trauma Scale related with SA that was/were responded positively was/were accepted as criteria for the presence of SAH.

Exclusion criteria: Subjects with severe psychological or psychiatric disorders, those with cognitive impairment, excessive aggression, difficulties to respond properly to questionnaires, presence of motor disorders associated with difficulties to write and those subjects with epileptic disorders, for instance, Parkinson Disease, were excluded from the study.

III. Measures

The Child abuse and Trauma Scale (CATS)[6] was used in the current study to gather data about history of emotional, physical and SA. This popular scale yields a quantitative index of the frequency and extent of various types of negative experiences in childhood and adolescence. In order to facilitate analysis and responses to questions and to better quantitate the type of abuse, we organized questions in those pertaining to the domains of sexual, emotional and physical abuse. In this scale, positive responses to questions are organized hierarchically in order of frequency in which Never=0; rarely=1, occasionally=2, frequently=3, always=4, so the researcher can easily quantitate the frequency of abuse.

IV. Statistical Analysis

Basic statistics including mean, standard deviation and range was used to analyze part of the data. Mann-Whitney nonparametric statistics was used to analyzed potential significant differences in age, duration of pain and amount of different drugs in the experimental and control subgroups.

V. Outcome

This investigation evaluated a subgroup of subjects presenting with CMDs, TTH and SAH (Experimental subgroup) which was compared to another subgroup demonstrating signs and symptoms of CMDs, TTH and no SAH (Control subgroup). Age was not significantly different when the subgroups were compared: CMDs + TTH + SAH (Mean 31,4, SD=12,5, range=18-66), CMDs + TTH No SAH (Mean 28,5, SD=11,5, range=14-56). Mann Whitney statistics (p=0,22), a statistically non significant difference. See Table 1 for additional details. Mean pain chronicity in the CMDs + TTH + SAH was about 9,5 years (SD=9,3, range=1-29) as compared with 3,5 years (SD=3,0, range=1-12) in the CMDs + TTH no SAH subgroup. Mann-Whitney nonparametric statistics (p<0,006), indicating that pain was of longer duration or more chronic in the SAH subgroup and the difference was statistically very significant. As for medication use history, mean of different drugs used to alleviate pain, stress, anxiety or depression was about 4,2 (SD=2,3, range=0-10 in the CMDs + TTH + SAH as compared to 3,0 (SD=2,0, range=0—7) in the CMDs + TTH no SAH: Mann – Whitney nonparametric statistics (p<0,02), indicated use of larger amounts of different drugs in the CMDs + TTH + SAH subgroup.

VI. Discussion

In the current study, it was found that longer duration of headache was observed more frequently in those with CMDs, TTH and SAH. Even though the negative role of SAH on chronic pain has been widely recognized, SA is more likely to operate indirectly causing and/or reinforcing more chronic pain through a number of mechanisms, psychological disorders and behaviors including associated higher levels of anxiety, somatization, depression, greater disability, chronic drug abuse, central and peripheral sensitization, multiple pain complaints and so forth. These considerations are in line with one investigation[7] in CMDs patients with physical and SAH. Researchers reported that greater levels of psychological distress including depression and anxiety were associated with a history of abuse in facial pain patients. Severe life adversities including physical and SA are now recognized as significant risk factor that may increase headache duration[8] Childhood SA is now recognized as an important etiologic factor for depression, somatic preoccupations, anxiety and even dissociative disorders[9]. Pain initiating before adolescence, very intense pain, presence of migraine and psychological disorders, for instance, depression and anxiety, have a significant role in the chronification of pain and disability[10]. Headache of longer duration is more likely to be observed among SA victims and by those who have been assaulted by multiple perpetrators[11] .

Because TTH is usually described as mild or moderate and initially responds well to over-the-counter medications, the patient may be led to believe that he or she may get relief of pain any time he or she takes such medications. Further, because TTH increases in frequency and intensity following a "progressive pattern" that sometimes may take years, this may encourage the patient to continue using the same drugs and or occasionally to shift to a "more effective or powerful one". This behavior may result in a subtle chronification of TTH in which both patient and drugs collaborate in a subtle symbiotic manner. These considerations are echoed by one investigation indicating that chronic daily headache may be caused my medication overuse.[12] Chronic headache may be perpetuated by several risk factors including medication overuse, stressful life events, depression and caffeine consumption[13]. The fact that TTH is not so debilitating as migraine[14] and occipital neuralgia combined with the observations that some over-the counter drugs provide a relative relief of pain, encourage patients to continue their daily activities. Such behavioral response contribute with the chronification of TTH in those with SAH. Women reporting SAH and chronic pain are more likely to use over-the-counter medication and street drugs[4].

Regarding central and peripheral sensitization as mechanisms increasing pain duration, a number of pain disorders including back pain, any type of headache, pelvic pain, facial pain and CMDs occur very

frequently in females with SAH[14], indicating the presence of a diffuse pain process in which pain in any location increases the probability of central and peripheral sensitization. Peripheral mechanisms, for instance, pain being referred from multiple trigger points in the masticatory muscles, TMJs and cervical structures likely operate to increase frequency and chronicity of headache pain. Peripheral mechanisms increase nociceptive input to certain areas in the CNS which in turn respond with many secondary mechanisms including lowering the threshold for pain. Supporting these points of view, one study[15] asserts that central sensitization occurs as the consequence of continuous peripheral input from pain receptors in the pericranial and cervical muscles which in turn contributes to chronic TTH. Depression and anxiety disorders very likely contribute amplifying sensitivity to pain and such amplification may be facilitated by the presence of migraine and physical or SAH[16].

CMDs, TTH and SAH subjects reported greater past and current use of different medications to alleviate headache as compared to the control subgroup. Those subjects were likely more incapacitated by headache and some psychological disorders (anxiety, depression and somatization), demonstrated more severe and long-lasting pain and because of their traumatic history, their treatment was more complex. These assumptions and findings are supported by one investigation[7] indicating that depression, anxiety, stress, somatization disorder, and substance abuse are consistent psychological correlates of sexual and physical abuse in the general population. CMDs, TTH and SAH subjects used different and larger amounts of medications including muscle relaxants, benzodiazepines and sometimes antidepressants as compared to those with no SAH who used analgesics and antiinflammatory drugs more frequently. These findings are substantiated by one investigation[13] indicating that TTH Is usually treated using a combination of nonsteroidal antiinflammatory medication, ibuprofen, naproxen, muscle relaxants and amitriptilyne.

Regarding the relationship between psychological disorders (depression, anxiety and somatization) and overuse of medication, one investigation[13] contends that medication overuse (as demonstrated in part in the current investigation by longer duration of TTH and self-reported medication use in those with CMDs, TTH and SAH), can transform an episodic headache into chronic headache with superimposed exacerbations. Further, patients with psychiatric disorders are those overusing medication as they are probably treating a comorbid disorder including depression, anxiety and probably posttraumastic stress disorder[13] . It is for some of these reasons that some authors consider medication overuse as a risk factor for the development of chronic headache[12]. TTH headache is not as debilitating as migraine. Nonetheless, TTH in many subjects may progress and transform into a chronic disorder. Thus, longer duration and more intense pain may encourage the use of amitriptyline in the control of chronic pain[17] One advantage in the treatment of chronic TTH using amitriptyline is that because of its inherent effectiveness, amitriptyline directly contributes to decrease the use of common analgesics[13].

Many sexual abuse related mechanisms may contribute to longer duration of pain in TTH subjects.

It may be that SA in childhood and adolescence in females with TTH is in some way related to anxiety, depression, somatization, personality disorders and psychological vulnerability. Consequently, these pathological changes through poorly understood mechanisms contribute to longer duration of pain. These assumptions are in line with previous investigations[4] indicating that women who reported a SAH had greater number of physical symptoms (somatization), anxiety, greater use of mental care utilization system and drug abuse as compared to those without SAH. Childhood SA has been correlated with higher levels of depression, somatic concerns, anxiety and dissociative disorders[9] In general, females with a history of physical and SA are more likely to report pain in many body sites. A history of abuse is linked to worse health status[18]. Common pains in females with SAH include abdominal, pelvic, head, and back pain[18]. It is apparent that females presenting with SAH are characterized by greater vulnerability to body pain and lower threshold to central and peripheral sensitization.

Because TTH is not so debilitating as compared to migraine and occipital neuralgia, it is very likely that some drugs more specifically analgesics and muscle relaxants are more effective to relieve headache. Thus, patients are more likely to continue their lives including their work activities as compared to patients with migraine and occipital neuralgia. These pains are currently considered much more incapacitating. Supporting this point of view, one investigation[17] contends that duration and intensity of pain is very variable, that TTH is not as debilitating as migraine and sufferers are able to continue their daily activities. In other words, moderate pain and relative effectiveness of some drugs contribute to longer duration of pain in TTH subjects. Nonetheless, the mechanisms that contribute to longer duration of headache in TTH subjects with SAH are completely different. Psychological disorders in SAH subjects with TTH are significant contributing factors to increase duration of pain.

One significant factor contributing to longer duration of headache including TTH, is SA related somatization. This point of view is supported by one study[11] in subjects presenting with chronic pain conditions. Researchers reported an association between a SAH and multiple types of pain including

musculoskeletal pain, backache, headache, abdominal and pelvic pain. One mechanism contributing to increase pain duration is one in which multiple body pains contribute to increased medication use, seeking health care services and increasing central sensitization, lowering the general body threshold for pain and rendering drugs less effective. Somatization is closely correlated with depression and one investigation[7] in OFP patients reported greater levels of distress and depression in such patients with a history of physical and sexual abuse..

This is not to say that psychological factors are the only elements which contribute the most to longer duration of pain. For instance, more recalcitrant and incapacitating pain combined with anxiety, somatization and depression may contribute to greater use of medication. In turn, drugs which are ineffective to treat pain, may also contribute to longer duration of pain. Supporting this point of view, one investigation[12] reported that other secondary factors including medication overuse, trauma and other musculoskeletal disorders may also contribute to longer duration of headache. When reviewing the literature on the relationship between sexual or physical abuse and longer duration of headache, it is apparent that multiple factors contribute increasing pain duration. There is a strong and consistent relationship between exposure to potentially traumatic personal events and longer duration of the most common headache types including migraine, TTH and combination headache[10].

VI. Conclusion

Because in the current investigation it was found that CMDs, TTH and SAH subjects demonstrated longer duration of headache pain, current or past use of greater amounts of medication, we conclude that such effects are mediated through psychological and behavioral disorders including anxiety, depression, somatization, incapacitation and drug overuse and these disorders or behaviors have been widely recognized in sexual abuse victims. Future studies should emphasize a comprehensive evaluation and diagnosis and a multidisciplinary treatment of TTH subjects with SAH.

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Table 1: Social and demographic data in CMDs subjects with (n=50) and without SAH (n=30).

AGE/GENRE	CMDS NO SAH	CMDS + SA
AGE		
Mean	28,5	31,4*
SD	11,5	12,5
Range	14—56	18—66
GENRE		
Females	46=92%	28=93,3%
Males	4 =8%	2 =6,7%
TOTALS	50=100%	30=100%

*Mann-Whitney statistics (p=0,22), a non significant statistical difference.

Table 2: Pain duration and past/current history of medication use in CMDs + TTH No SAH (n=50) and in CMDs + TTH + SAH subjects (n=30).

TTH PAIN NO SAH	CMDS + TTH + SAH	CMDS + TTH
DURATION (Years)		
Mean	3.5	9,5**
SD	3,0	9,3
Range	1—12	1—29
MEDICATION USE HISTORY		
Mean	3,0	4,2***
SD	2,0	2,3
Range	0—7	0—10

**Mann-Whitney statistics (p<0,006), a very significant statistical difference.
***Mann- Whitney statistics (p<0,02), a statistically significant difference.

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