·Lecture·

POST-TRAUMATIC HEADACHE: A NEUROREHABILITATION PERSPECTIVE (Part Ⅰ)

Nathan D. Zasler[1] Michael F. Martelli[2] Yuanbiao Liu[3]

Abstract

Although post-traumatic headache (PTHA) is a common problem following trauma its' multidimensionality remains somewhat poorly understood. Often, clinicians and researchers try and make the problem of post-traumatic head pain a straightforward one. One of the reasons that there is controversy of what would seem to be a simple condition on the surface is that clinicians tend to view PTHA over simplistically from both an assessment and treatment standpoint. Some have argued that PTHA is no different that non-traumatic headache in either etiology or treatment. There remain significant deficiencies in our understanding of PTHA as related to a lack of good epidemiological, treatment and prognostic literature. These limitations must be acknowledged where applicable in the context of clinical neurorehabilitation care, as well as, in the forensic arena. This article will review the current understanding of PTHA as a complex, multidimensional post-traumatic phenomena examining incidence, etiology, assessment and management.

Key word traumatic brain injury; headache; cephalalgia

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摘要

虽然创伤后头痛(post-traumatic headache,PTHA)是创伤后常见的临床问题,但我们对其复杂的多维本质仍缺乏足够了解。临床医生和研究人员常在实际工作中试图将问题简化,即希望简化临床评估和治疗中所面临的问题、将其视作一个单纯表现;还有人认为创伤后头痛与那些非创伤性头痛的病因、治疗等均无明显区别。目前,我们对于创伤后头痛的认识仍然相当不充分,缺乏关于流行病学、治疗及预后的高质量文献。在神经康复日常工作及相关法律问题的处置上也需充分理解对疾病认识的局限性。本文的主要内容是综述将创伤后头痛作为遭受创伤后复杂的多维度问题进行认识的最新概念和理论,包括发病率、病因、评估及治疗等。

关键词 脑外伤;头痛

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INTRODUCTION

The literature on post-traumatic headache appears replete with much confusion regarding nomenclature. Often times, clinicians incorrectly assume that because someone has complaints of post-traumatic headache that they sustained some type of insult to their brain. Clearly, the literature and experience indictate that individuals with post-traumatic headache may develop such a problem and

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1 CEO and Medical Director, Concussion Care Centre of Virginia, Ltd. and Tree of Life Services, Inc.,Professor, Affiliate, VCU Department of Physical Medicine and Rehabilitation,Richmond, Virginia,Associate Professor, adjunct, Department of Physical Medicine and Rehabilitation, University of Virginia, Charlottesville, Virginia,Professor, Graduate School of Psychology, Touro College, New York, NY,Concussion Care Centre of Virginia, Ltd.3721 Western Parkway, Suite B,Richmond, Virginia, USA 23233,nzasler@cccv-ltd.com

2 Director of Neuropsychological Rehabilitation, Tree of Life Services, Inc.,Adjunct Associate Professor, Department of Physical Medicine and Rehabilitation, University of Virginia,Richmond, Virginia, USA

3 Department of Rehabilitation Medicine,Hangzhou First People's Hospital, Zhejiang Province, Hangzhou, China,310006

potential related disability through a variety of different mechanisms, as related to a history of trauma involving brain injury, cranial or cranial adnexal injury, as well as, cervical acceleration/deceleration injury. It is also important to differentiate headache that may have it's temporal onset following trauma but not be casually related to that injury from true post-traumatic headache. That is, patient's may develop conditions affective and otherwise after an injury that result in the development of such disorders as chronic daily headache or tension type headache without necessarily a direct causal link to the initial trauma, per se.

Some individuals consider the diagnosis of post-traumatic headache (PTHA) to be a so-called "garbage can" diagnosis. The phrase PTHA does not tell patients, family or other health care practitioners what they did not already know; that is, that they were involved in a trauma and subsequently have suffered from a headache condition. More importantly, many practitioners believe that it is important to specifically identify the pain generators in the context of providing diagnostic labels that may better guide clinical treatment.

The propensity to make a particular diagnosis, pathoetiologically, seems to have a lot to do with one's perspective. As Goethe once said, "We see what we look for, we look for what we know." Each medical specialty tends to observe the things that they have been trained to find. As a rule, no one specialty has the 'market cornered" in the area of PTHA. This makes the management of a complex disorder such as post-traumatic headache at best challenging since there are few clinicians who have taken the time to familiarize themselves with the scope of knowledge necessary to fully assess these individuals. There is a confluence of knowledge derived from anesthesiology, orthopedic medicine, neurology, neurosurgery, psychiatry, physiatry, otolaryngology and psychology among other fields that must serve as a foundation for adequate assessment and treatment of persons with post-traumatic head pain.

Dr. Appenzeller has been noted to have said "nowhere is scientific medicine less evident than in the treatment and management of post-traumatic headaches." As practitioners in the field of brain injury care, we could not agree more. There is much confusion in the field across both medical and non-medical disciplines as to the exact nature of post-traumatic headache. There clearly remain significant deficiencies in our understanding of post-traumatic headache which can be seen in the lack of good epidemiological, treatment and outcomes research. These limitations much be acknowledged in the context of clinical care, as well as, in the medicolegal context.

NOMENCLATURE ISSUES

Part of the confusion regarding PTHA is certainly promulgated by poor and inconsistent use of nomenclature both in the context of clinical care and in research. A prime example of this is using a symptom e.g. headache, rather than the etiologic pain generator as a diagnosis e.g. post-traumatic headache. A diagnosis of "post-traumatic headache" without any other type of elaboration should not be acceptable in clinical care or forensic assessment. Such a diagnosis does nothing to explain to the patient or for that matter anyone else, what the problem is or how to treat it. It simply tells them what they already knew, that is, that they had a traumatic event and now have a headache.

Although some would acknowledge that there is controversy regarding the etiology of post-traumatic headache, it seems quite apparent that there is not just one etiology of post-traumatic head pain. Therefore, it is essential to provide appropriate diagnostic labels based on history as noted by the patient and the record, exam findings, and our current knowledge base regarding etiologies of head pain, whether from intracranial, cranial or extracranial (including referred) sources.

Another problem with nomenclature that has impacted PTHA research is the lack of consensus regarding terminology and definitional criteria for a number of different conditions frequently associated with PTHA, including but not limited to: concussion, mild traumatic brain injury, post-concussion syndrome and/or disorder, as well as, post-trauma syndrome. Unless we are able to develop consensus on when to use which term(s), PTHA research will continue to be difficult to interpret and the results of any epidemiological research will be impossible to generalize.

CLASSIFICATION CRITERIA

Current classification systems for PTHA have much to be desired given their general nature, as well as, the em-

pirical basis for the definitional criteria. If one examines the International Headache Society's (IHS) classification for PTHA or the International Classification of Diseases and Related Health Problems, 10th Edition (ICD-10) system, it is readily apparent that there are at least some problems with the current taxonomy for PTHA. The ICD-10 classification system uses criteria that are primarily concerned with the temporal onset and pathogenetic relationship of the headache to the trauma and not with the clinical features of the headache condition. ICD-10 criteria for PTHA require that headache onset occur within two weeks of the traumatic event or regaining consciousness. This temporal onset criteria appears to have been determined only on the basis of empiricism. Clearly, although it tends to be the exception rather than the rule, there are patients who develop headache that is fully apportionable to their original injury beyond the "two week rule" including tension pneumocephalus and cluster headache. Another problem with the time designation of two weeks is that often patients may have significant multitrauma with other more painful conditions (e.g. neck injury) than their headache causing them to focus their attention on the more painful body part. Additionally, some may also argue that in more severe brain injury, the patient's cognitive status may limit their ability to identify and/or appreciate head pain.

Also of concern is the fact that the ICD-10 criteria for either acute or chronic PTHA require one of the following: a loss of consciousness, a period of antegrade amnesia of at least ten minutes or abnormal neurodiagnostic/neurologic exam. Such inclusion criteria will exclude patients with various forms of post-traumatic headache including referred pain from cervical injury, as well as, direct cranial and/or cranial adnexal injury, among other "post-traumatic" etiologies. Although there are classifications for other types of headache that may be applicable to these patients, they would not, by definition, fall under the rubric of "post-traumatic headache" by ICD-10 criteria.

Patients with "minor head trauma and no confirmatory signs" under group in a separate classification. Acute PTHA by ICD-10 definition resolves within 8 weeks with chronic PTHA being defined temporally as any post-traumatic headache lasting longer than 8 weeks.

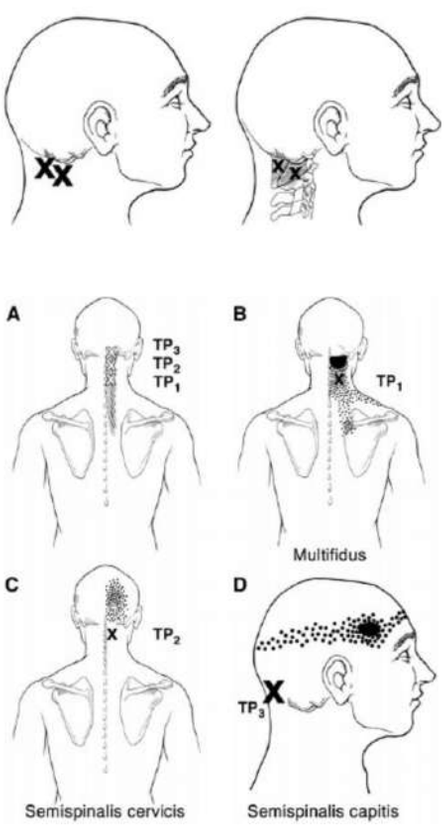
The IHS criteria were originally published in 1988 to address the lack of operational rules and non-uniformity of nomenclature in the headache field. The classification system defines 13 major categories of headache with two broad categories (primary versus secondary headaches). The IHS classification system has been endorsed by the World Health Organization(WHO) and the principles of the system have been incorporated into the ICD-10. The IHS criteria use both clinical features and laboratory testing to provide inclusion criteria. As with ICD-10, headache associated with "head trauma" is divided into acute and chronic PTHA. A second edition of the IHS Classification is scheduled for publication in 1999. While there is fairly good correspondence between the ICD-10 and IHS headache classification systems currently, this may change with the 2nd edition of the IHS classification.

SOURCES OF HEAD PAIN

Potential sources of head pain that may be relevant in the assessment of a patient presenting with post-traumatic headache include the dura, venous sinuses, cranial cavities including sinuses, eye socket, ear, nasal and oral pharynx. The skin, nerves, muscles and periosteum of the cranium are all pain sensitive. Cervical/cranial joint capsules (including the temporomandibular joint), cervical facets/zygapophyseal joints and the cervical sympathetic plexus may all be primary nociceptive pain generators that produce local or referred head pain. One of the most common, yet often overlooked, sources of head pain is referred cervical myofascial pain emanating from any of the four layers of posterior cervical, as well as anterolateral cervical musculature secondary to cervical acceleration/deceleration injuries generally associated with the traumatic events that caused the brain injury in the first place (see Figure 1—3).

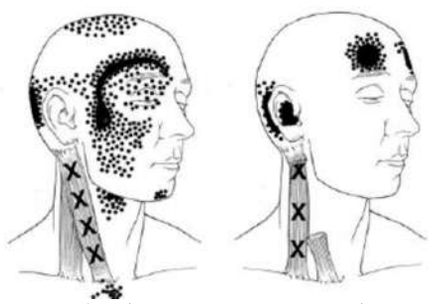
(to be continued)

Figure 1 Posterior cervical muscles prone to development of trigger points producing referred pain causing cervicalgia and/or cephalalgia
常见的容易引发牵涉性颈痛和/或头痛的颈后肌群扳机点



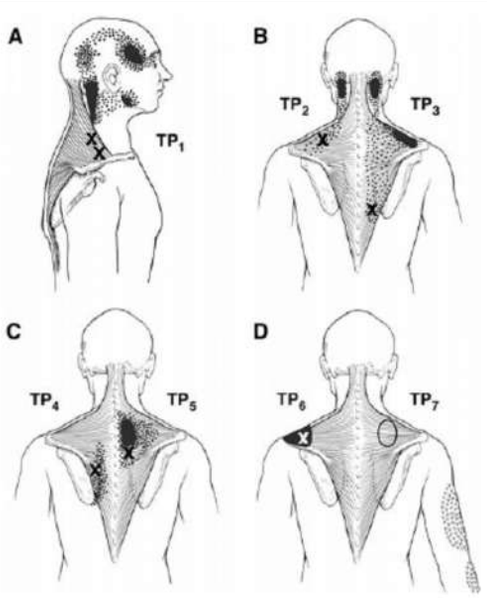
TP: trigger point,扳机点; Multifidus:多裂肌;Semispinalis Cervicis: 颈半棘肌; Semispinalis capitis: 头半棘肌

Figure 2 Referred pain patterns for sternocleidomastoid muscle trigger points, sternal division (A) and clavicular division (B)
胸锁乳突肌扳机点引发牵涉痛的特征



A:胸骨端 B:锁骨端

Figure 3 Trapezius muscle trigger point referral patterns
斜方肌扳机点牵涉痛的特征



TP, Trigger Point,扳机点

译文:

有关文献对创伤后头痛的命名法还存在众多争议。很多时候临床医师错误地认为创伤后头痛是指患者大脑遭受了某些创伤或损伤。文献和临床经验清楚地表明创伤后头痛是指由于大脑、颅骨及其附属结构遭受外伤、颈部加速或减速性损伤后通过各种不同机制发生的头痛及功能障碍。同样还要对那些仅在时间上与创伤的发生有关,而无因果关系的头痛与真正的创伤后头痛进行鉴别,前者是指那些碰巧在外伤以后出现慢性每日头痛或紧张性头痛,而在本质上与原发的头部创伤无直接因果关系。

还有一些人认为创伤后头痛是一个"垃圾桶",除了告诉患者本人、家庭成员和医护人员他们原有的外伤以后出现了头痛的临床状况以外,不能提供其他更多有用的信息。更重要的是,临床工作者都认为有必要对产生疼痛的确切原因进行明确的区分以建立准确的诊断,有助于更好地指导临床治疗。

做出特异性的病理、病因学诊断在一定程度上与医护人员的专业背景有很大关系,正如歌德所说的:"我们仅看到希望看到的;我们仅寻找我们所了解的"。不同专业人员都会用自己所习惯的思维方式观察事物,目前为止尚无专门处理

创伤后头痛的医学专业人员，因此，使得临床上对创伤后头痛的处理变得极为困难，所有参与治疗的专业人员都缺乏全面评估患者所需的专业训练。对创伤后头痛进行准确评估和治疗需要汲取和综合来自麻醉学、骨科医学、神经病学、神经外科学、精神病学、物理医学与康复医学、耳鼻咽喉科学以及心理学的相关知识。

Appenzeller医生曾指出“创伤后头痛的诊断和治疗领域是最缺乏科学性的医学领域”。作为脑外伤治疗专业人员，我们对此深表赞同。医学或非医学领域内对创伤后头痛的确切性质仍存在很多疑惑。我们可以看到目前仍缺少足够数量和高质量的流行病学、治疗及转归研究，我们对其的认识仍有很多不明确之处。我们在从事临床工作以及涉及医学法律事务时需要对这些局限性有充分认识。

命名问题

造成PTHA概念混乱的原因之一是由于临床和研究中没有能统一使用的较好的命名法。比如说，常用“头痛”症状作为诊断，而不使用能反映疾病起因的“创伤后头痛”。事实上没有附加任何详细说明的“创伤后头痛”诊断也不宜用于临床实践和医学法律事务，因为不能告诉患者及有关人员任何有意义的信息，包括问题的实质以及如何治疗等等，仅是再次告诉患者在罹患了头部创伤以后又出现了头痛的症状。

虽然对创伤后头痛的病因还有争议，但是大家公认的是引起创伤后头痛的原因不止一个。因此，需要在患者本人、既往病史记录中获得详尽的病史资料，体格检查发现以及目前对头痛是来自颅内或者颅外等认识的基础上作一定说明作为创伤后头痛诊断的补充信息。

有关创伤后头痛命名法的另外一个问题就是缺乏对与PTHA有关问题的专门术语，而且诊断标准也缺乏统一意见，比如脑震荡、轻微脑外伤、脑震荡后综合征，以及创伤后综合征等。在达成何时应用哪个术语的共识之前，有关创伤后头痛的研究结果仍然难以解释、流行病学检查结果也难以作为普遍结论。

分类标准

目前使用的分类标准系统主要以创伤后头痛的一般性质为基础，并以及依赖经验为主作为分类标准，该分类方式仍有待进一步完善。对照国际头痛学会（International Headache Society, IHS）的创伤后头痛分类及国际疾病分类（ICD-10）的分类系统，我们就可以发现目前分类法存在的一些明显问题。ICD-10分类系统首先关注头痛症状出现与创伤发生的时间关系以及发病机制之间的联系，而基本不考虑头痛的临床特征。ICD-10中的创伤后头痛诊断是指创伤后或者患者苏醒后两周内出现头痛，但是该诊断标准完全是建立在临床经验基础上的。在临床上还是可以见到一些患者的头痛完全是由于创伤所引起的，但是发作时间往往距外伤两周以上，比如紧张性颅腔积气、丛集性头痛等。仅仅根据时间标准来诊断不能解决的另外一个问题是，有一些患者常常在遭受头部外伤的同时伴发多发性创伤，而且可能其他部位的疼痛程度要比头痛强烈而使得起初时的注意力更多地关注其他身体部位的疼痛（如颈痛），而忽视了头痛。此外，严重颅脑损伤患者的认知功能状态影响患者对是否存在头痛的判断能力。

对ICD-10版急性或慢性创伤后头痛诊断标准的另外一个担心是因为除了时间特点以外，还需要至少包括下列特征之一：有意识丧失、顺行性遗忘超过10min以上以及神经诊断或神经病学检查异常。但是这样的诊断标准又排除了很多其他不同原因及类型的创伤后头痛，比如颈部损伤引起的放射性疼痛、颅骨以及颅骨附属结构的直接损伤等。虽然可以将这类疼痛归类为其他类型的头痛，但是从定义来说，肯定不能归类到ICD-10的创伤后头痛。另外还将那些无明显症状、体征的轻微脑外伤患者单独分类。ICD-10还指出急性创伤后头痛是指8周内症状缓解者，而慢性头痛是指症状持续超过8周以上。

IHS的分类标准最早在1988年提出，以弥补对头痛诊治缺乏操作性规则和统一命名规则的缺陷，将头痛分类两大类（原发性头痛、继发性头痛）共13种主要的头痛类型。该分类系统得到了WHO的支持和认可，并将其基本原则应用到了ICD-10分类标准中。IHS提出的纳入性诊断标准同时考虑患者的临床特征和实验室检查结果。与ICD-10标准相似，IHS系统也将与头部创伤有关的头痛分类急性和慢性创伤后头痛。IHS分类标准的第2版在1999年发布，因为旧版本已与ICD-10的头痛分类系统有一定的对应性基础，新版的发布有望进一步改善这种对应性。

头部疼痛的来源

创伤后头痛患者疼痛的可能来源部位包括：硬脑膜、静脉窦、颅腔包括鼻窦、眼眶、耳朵、鼻及口咽部位等。颅骨的皮肤、神经、肌肉以及骨膜都是对疼痛比较敏感的部位。颈部及颅骨关节囊（包括颞下颌关节）、颈椎关节突关节以及颈部交感神经丛都是主要的伤害性疼痛发生部位，引发局灶性疼痛或牵涉性头痛。另外一个非常常见，但是临床上常被忽视的疼痛来源是颈部的牵涉性肌筋膜疼痛，常常起源于引发脑损伤的创伤性事件中存在颈部加速性或减速性损伤而进一步累及颈后部的四层组织或颈前外侧肌群的肌筋膜性疼痛（图1—3）。

翻译：刘元标（未完待续）