Author's response to reviews

Title: Traumatic-event headaches

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Replies to referees of Traumatic-event headaches

Referee 1 (Dawn Marcus):

Replies to General comments:

In her first comment in the first paragraph, she says that my diverse series of patients doesn't meet my stated criteria of having had traumatic events without head or whiplash injury. She points out that the two patients who lost consciousness should be considered as having head injury and so should the man who suffered a facial laceration. These comments raise the question of the meaning of the term "head injury," which I did not define, because I saw no need for it (I used the synonymous term "head trauma," which the IHS used in their section on the classification of post-traumatic headaches--see my reference 14). In fact, neither the IHS nor the many papers I have read on head injury define the term, because it's known to mean an injurious blow to the head, either from a moving object striking the head or from an impact of the moving head against an object. Admittedly, as Bryan Jennett, an authority on head injuries, said, the "....minimum degree of severity required for classification as a head injury" is a fuzzy border ("Epidemiology of head injury" by B. Jennett in J Neurol Neurosurg Psychiatry 1996;60, p 363). But clearly, not all head impacts are legitimate head injuries. For example, most of the common little bumps on the head that happen to children at home aren't head injuries. Heading the ball in soccer (football) isn't even a head injury (It gives head accelerations of less than 10 g-see "Brain injury and heading in soccer" by P. McCrory, BMJ 2003;327:353-2). With this as background information, let's look at my two patients who lost consciousness and the one with a facial laceration. One who lost consciousness did so because she fainted while standing after giving blood. Her unconsciousness was, therefore, not from head trauma; it was a typical syncope. The other patient lost consciousness when he received a high-voltage electrical current. He too had no head impact. The man whose face was cut as he fell against a sign did not receive a blow to his head and did not have even a trivial concussion as defined by the Congress of Neurological Surgeons (the case report-patient 9-stated that he was not stunned). The presence of a facial laceration does not by itself say "head injury." This has been pointed out by Jennett (p 363, above reference): "Clinical evidence of damage to the head is the most reliable way to recognise that a head injury has occurred, but all definitions exclude injuries confined to the face..."

In her next comment in paragraph 1, she states that most of my cases "represent acceleration/deceleration type injuries." I take this term to be synonymous with "whiplash injury," the traditional term that I used in my manuscript. She explicitly cites two cases that she would place in this category: the woman in the minor snowmobile accident (patient 12) and the man who toppled over in his beach chair (patient 13). I defined "whiplash injury" in Methods as "a term denoting a painful cervical injury, typically occurring during a motor-vehicle collision and generally considered to be a cervical sprain [7, 12, 13]." This is used throughout the literature, as indicated by my references. In traumatic events, such as those in this series, one can't know how much the head was accelerated by the imposed forces. So, the presence of a neck injury should be based on the
patient's complaints of pain at the time of or near the event and on examinations. Because the woman in the snowmobile had no neck pain right after the accident or during the remainder of the day, a neck injury seemed most unlikely. What was impressive was how upset she was about such a minor bump. Her neck discomfort on the following day could, admittedly, be compatible with a minor strain during the accident, but it could have other explanations. Moreover, her many other more prominent symptoms and her inability to work were grossly disproportionate to an apparently trivial accident that produced no bodily symptoms at the time. The man whose beach chair fell sideways never had neck pain, so I don't see why one would think that he had a cervical acceleration/deceleration injury. She also states that "in the table, most cases represent acceleration/deceleration type injuries." I don't see how one could interpret them as such. Only one patient besides the snowmobile lady had neck pain (patient 5), but it was not from movement of the neck; it occurred soon after he used a wrench to loosen a bolt. Besides the absence of neck pain in the other patients, none had traumas that would be expected to produce forceful head/neck acceleration. Dawn seems to be suggesting that chronic headaches that follow any sort of bodily movement or action are acceleration/deceleration injuries even in the absence of acute or chronic neck pain. I know of no evidence for such an interpretation.

In view of what I have just said, I cannot accept her suggestion (in her paragraphs 2 and 3) that I rewrite my paper to fit her idea about acceleration/deceleration injury. This paper's purpose and merit is to present evidence showing that headaches follow very diverse traumatic events not including either head trauma or whiplash injury, and to offer from this evidence a new way of looking at chronic post-traumatic headaches after head trauma and whiplash, namely that the main trigger for the development of such chronic symptoms is the traumatic-event in its entirety, not the particular physical injury. I have been studying and gathering evidence on traumatic-event headaches since I first presented their occurrence at a research meeting of the IHS in 1993-see reference 11. I said then that "Headaches commonly follow motor vehicle and industrial accidents in which neither a blow to the head nor a violent movement of the head and neck occurred. Such headaches have not been studied systematically." My present paper is the first such systematic study. It's a small study from a single office practice, and is in essence a pilot study.

I also see no merit in comparing (as she suggested in her paragraph 3) the percentages of post-traumatic symptoms in my series (listed in table 2) with those that accompany post-traumatic headaches as reported in the literature, because I'm reporting only 15 patients and the percentages vary greatly from report to report in the literature. Certainly, such a comparison could not be legitimately analyzed statistically.

In her second paragraph, she mentions, in suggesting how I might re-write my paper, that I not include cases with concussion. But I had no cases with concussion. As I said above, none had head injury or were even stunned. She also suggests that I eliminate my patient (number 15) who had an electrical injury, because "neurological trauma after electrical injury is well known." Indeed it is, but not the chronic headache that this man suffered despite being perfectly normal cognitively.

Referee 2 (Keith Nicholson)

Minor Essential Revisions: The missing "t" in juxtaposition, now in page 11, not 10, has been added.

Discretionary Revisions:

"the problems associated with mind-body dualism should be avoided..."  
Reply: Keith did not specify these problems or locate them in my text, but I assume that he is referring to my attribution of symptoms (body?) to mental aberrations. The questions he posed that follow in this section are interesting and important, but I can't answer them to my satisfaction, and I've not seen in the neurological/headache literature satisfactory discussions of them either. I did not alter my manuscript after considering his questions, but I give my answers to them in the following
He would like to see my use of "altered mental states" (page 14, para 1) qualified. 
Reply: I cited 5 references to support my use of this term, which was the best I could come up with to cover the considerable range of suggested mental conditions in these cited papers. I gave an indication of what explanations have been proposed in medical papers by saying "These include, among others, neurotic reactions and culturally-related expectations of symptom development."

He would like to see more said about the role of psychosocial factors in the etiology/maintenance of headaches in general. 
Reply: Because such concerns were not part of my studies of these patients (I wanted to document basically only their traumas and headaches), I didn't want to tackle the diverse and complex medical literature on this subject. However, the relation of psychosocial factors to headaches needs to be studied by those who know how to do so. I've yet to see this done for post-traumatic headaches.

He asks about the meaning of "psychogenic" (I used this word in Conclusions on p 14). It's certainly a commonly used handy word, but it's admittedly vague. I used it in its dictionary definition: "of psychic origin, or dependent on psychic conditions or processes, as a mental disorder." When bodily illness is excluded as the cause of symptoms, then "psychogenic" is a handy term, until more can be said about the nature of the causal mental aberrations.

Lastly, he asks in this section for some reference to underlying psychophysiological mechanisms for headache, if I understand his statement correctly. 
Reply: Unfortunately, the mechanisms underlying headache are little understood. We only have little bits and pieces of information.

"-perhaps briefly identify IHS criteria for tension and migraine headache."
Reply: I agree that this would be helpful for those who are not headache specialists, so I've added them to the section in the Results entitled "The headaches" beginning on page 5. In this section, I've also made some minor textual changes.

"-how was PTSD assessed...."
Reply: In page 10 under "Other post-traumatic symptoms," I stated that "Only patient 2 had any of the symptoms included in the syndrome of post-traumatic stress disorder [18]." The presence of PTSD was assessed by unstructured questions during office interviews, based on the criteria for PTSD listed in reference 18, the DSM 4. Because headaches and associated post-traumatic symptoms were the focus of my clinical assessment, my data on PTSD symptoms is probably incomplete. Nevertheless, I thought that alluding to this one patient with partial PTSD was worthwhile, because it points out the absence of notable PTSD in the others. PTSD is not part of the usual post-traumatic syndrome.

"-briefly mention the limitations of the study in the discussion. e.g. a case series, no measures of mental state or psychosocial factors, etc."
Reply: I agree that something more should be said about limitations, so I've added 2 sentences to the Discussion at the bottom of page 12-the next to last sentence and the one before this. The last sentence was added because I realized I'd neglected to say something necessary about PTSD in my study in the Discussion.

"-how are these headaches different, if at all, from what may be expected if naturally occurring."
Reply: In this study I did not compare the traumatic-event headaches with naturally occurring headaches in my practice. I only diagnosed them by their features as though they were naturally occurring headaches-and they fit the criteria for chronic tension-type or migraine well. However, in a prior paper I did compare chronic post-traumatic headaches with naturally occurring headaches in my practice-see reference 15. In the present paper, I made a connection between the
traumatic-event headaches and chronic post-traumatic headaches--on page 13, paragraph 2.