Psychological trauma in the onset and maintenance of chronic pain

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**Theme**

Although much research demonstrates that childhood maltreatment and traumatic life experiences are associated with chronic pain (Lumley et al., 2012; Tesarz et al., 2015; 2016), uncertainties still remain. Indeed, almost all studies have been retrospective, and it is unclear which type of chronic pain syndrome is implicated (Lumley et al., 2011), whether trauma affects pain through emotional and cognitive dysfunction (Ciaramella, 2017; Siqveland et al., 2018; Burger et al., 2016), whether interpersonal and social problems are involved, and whether trauma affects pain only through post-traumatic stress disorder (PTSD) (Fishbain et al., 2017).

**Takeaways**

This symposium will present new findings on the specific influence of childhood victimisation on the risk to develop chronic pain as well as the level of subjective impairment (Riedl). Concerning the type of pain syndrome involved, the differing traumatic attribution of pain between fibromyalgia and chronic back pain patients will be presented (Allaz), and the whiplash-mechanism of post-traumatic headache will be discussed (Mosek). Furthermore, the influence of trauma type in the onset and persistence of pain will be explored, as well as which cognitive and emotional factors may be affected by trauma (Ciaramella). Finally, relationships between traumatic experiences and associated psychobiological mechanisms and therapeutic implications will be discussed. Data on the influence of trauma-focused psychotherapeutic interventions in pain patients on their pain will be presented (Tesarz). This symposium is designed to clarify some of the persistent uncertainties in the wide field of the relationship between trauma and chronic pain.

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Role of traumatic life events in cognitive and somatic discomfort in subjects with episodic and chronic pain

Aim
Traumatic life events (TLE), particularly childhood adversity (Dokyoung and Meagher, 2018), contribute to chronic pain (CP) (Lumley et al., 2012; Tesarz et al., 2015). Though research suggests that TLE affects CP through post-traumatic stress disorder (PTSD) onset (Fishbain et al., 2017), changes in autobiographical memory (AM) and emotional dysregulation may be involved (Ciaramella, 2018; Siqveland et al., 2018). We investigated the impact of major and minor traumatic events in subjects with CP, and those whose pain had not yet become chronic (NCP).

Methods
140 subjects (37 CP, 27 NCP, 23 with psychiatric disorders without chronic pain, and 53 controls) took the Life Stressor Checklist, revised (LSCR) for trauma; cold pressure test for pain threshold and tolerance; Symptom Check list 90 (SCL 90), Toronto Alexithymia Scale (TAS 20), Somatosensory Amplification Scale (SSAS) for cognitive and emotional psychological dimensions and Direct Forgetting paradigm (DF) for autobiographical memory (AM).

Results
Results: Only 1 subject was diagnosed with PTSD. Minor trauma (did not meet PTSD criterion A) was prevalent in NCP ($\chi^2=24.31; p=0.0001$) and no differences in the prevalence of major trauma (met PTSD criterion A) were found among pain groups. Major trauma was associated with AM impairment and higher SSAS score, irrespective of pain group. CP subjects had higher TAS F1 (difficulty identifying feelings) scores than the other groups ($F=11.74; p=0.0001$), irrespective of trauma severity.

Conclusion
Minor trauma may predispose to NCP and major to CP. Subjects with major trauma showed impaired AM and increased somatic discomfort, irrespective of pain duration.

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Psychological trauma and its consequences in chronic pain: empirical data and new therapeutic approaches

Aim
Early stress exposure and psychological trauma has been associated with an increased risk of chronic pain. However, the mechanisms underlying this association are unclear. Therefore, this lecture considers whether distinct types of early stress exposure and psychological trauma are accompanied by specific alterations in somatosensory function. The possible therapeutic implications will be discussed and data on the influence of trauma-focused psychotherapeutic interventions in pain patients on their pain will be presented.

Methods
Comprehensive profiles on early stress exposure, psychological trauma, and somatosensory function were obtained in a total of 176 chronic low back pain subjects and 27 pain-free controls.

Results
We found specific signs of an augmented central pain processing in chronic back pain patients with an history of trauma exposure, whereas chronic pain patients without an history of trauma exposure showed only local changes (alterations only in the painful area) suggesting regional sensitization processes. Trauma symptom severity correlated with the magnitude of hyperalgesia. Early stress exposure was accompanied by specific alterations in somatosensory function. Emotional abuse was associated with enhanced spinal pain summation, and sexual abuse with enhanced touch sensitivity. These alterations in pain perception were partially reversible after a trauma-focused psychotherapeutic Eye-Movement-Desensitization-Reprocessing (EMDR) intervention.

Conclusion
Taken together, our data indicate that there are distinct sensory profiles in in chronic back pain patients with and without an history of trauma exposure. Trauma-focused psychotherapeutic interventions show promising results in this subgroup of pain patients.

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The influence of childhood victimization on the occurrence and severity of chronic pain in adulthood

Aim
There is growing evidence that experiences of violence during childhood may harm the physical and psychological health in adulthood. The aim of the present study was to present data on the influence of childhood victimization (CV) on chronic pain in adulthood and to identify vulnerable phases during childhood.

Methods
At the University Hospital of Innsbruck data from 1820 patients was collected during clinical routine for this cross-sectional study. CV were assessed with the German version of the MACE (Maltreatment and Abuse Chronology of Exposure Scale). Chronic pain was assessed with a comprehensive self-administered checklist from the German Pain Questionnaire and psychological symptoms were assessed with the BSI-18 (Brief Symptom Inventory).

Results
Of the included sample 30.3% reported to have chronic pain, and about half of the patients with chronic pain reported to feel quite impaired by their pain. The likelihood to develop chronic pain was 3.4-times higher for poly-traumatized patients (i.e. > 4 CVs) than patients without CV (95%CI 2.23-5.16; p<.001). Patients with chronic pain reported significantly more CVs from the age of six years on, with peaks at the age of 10 and 14 years. Higher level of impairment by chronic pain was significantly associated with symptoms of depression (p<.001), anxiety (p<.001) and somatization (p<.001).

Conclusion
A significant number of patients in primary care hospitals report chronic pain and about half of the patients with chronic pain suffer significantly. The results of our study underscore the influence of childhood victimization on the likelihood to develop chronic pain.

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Trauma history in the narratives of two groups of chronic pain patients

Aim
Trauma history is often associated with chronic pain. We explored how patients suffering from fibromyalgia (FM) or chronic non specific low back pain (LBP) addressed traumatic experience in their narratives concerning pain onset.

Methods
85 female patients, 56 with fibromyalgia (FM) and 29 with LBP, were assessed with face-to-face semi-structured interviews. Open questions specifically addressed the onset of the pain problem, illness history and general context. Transcripts were analysed by two independent researchers using classical qualitative methods to define categories and themes. Chi square and t-tests were used to compare sociodemographic and pain characteristics in the two groups of patients.

Results
Pain duration was >5 years in 2/3 of both groups. The groups were comparable for sociodemographic characteristics but with a higher disability rate in FM patients. Traumatic experience was frequently mentioned but differed between the groups. Patients with FM evoked significantly more psychological traumas: death of a relative (36% versus 3%), psychological shock (30% versus 0%), childhood violence/abuse (18% versus 7%), divorce (16% versus 0%), traumatic events related to pregnancy, childbirth or their post-natal aftermath (29% versus 10%). LBP patients evoked more somatic events: accidents (45% versus 25%), disrupting awkward movements (31% versus 0%), lifting heavy weight or being worn out (52% versus 18%).

Conclusion
Traumatic experiences were frequently mentioned in the narratives of chronic pain patients and included present and past events. They differed widely according to the type of pain. Open-ended questions clearly encourage patients to evoke their traumatic distressful experiences.

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Perceived burdens in dealing with rare diseases: A qualitative focus group study

Aim
Rare diseases are heterogeneous diseases each having a prevalence of <1:2000. Objectives of this study were to explore perceived burdens of patients with different rare chronic diseases and identify commonalities and differences in the experiences of patients with four heterogeneous conditions.

Methods
Patients with neurofibromatosis type 1 (n=4), Marfan syndrome (n=5), primary sclerosing cholangitis (n=5) and pulmonary arterial hypertension (n=4) participated in four separate focus groups. We asked participants about the perceived burden of living with their rare disease using a semi-structured interview guide. The focus groups were recorded and transcribed verbally. We analyzed the data with qualitative content analysis by first inductively identifying categories and then deductively applying the category system to the data.

Results
Among burdens patients described, we identified five main themes: medical problems, psychological/emotional burdens, problems with the health care system, limitations and interpersonal problems. While medical problems (i.e. symptoms) varied widely between different diagnoses, we identified many shared burdens among patients with different diseases. These included psychological burdens (e.g. depressive mood), problems with the health care system (e.g. lack of adequate treatment options), limitations (e.g. in professional life) and interpersonal problems (e.g. lack of understanding by others).

Conclusion
Patients with rare diseases face burdens beyond medical symptoms. Despite clinical heterogeneity, patients with different diseases shared many of these burdens. Some of them seem to be related to the rarity of the conditions, particularly aspects concerning the health care system. Addressing shared burdens in interventions may help provide psychosocial support for different rare diseases concurrently.

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