

Press release

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Basic information

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Department of: Dentistry

Main supervisor: Peter Svensson

Title of dissertation: Somatosensory characterisation and predictive mechanisms of tension-type headache

Date for defence: 28/06/19 at (time of day): 14:00 Place: Auditorium 4 Building 1613, room 135 Vennelyst Boulevard 9 Department of Dentistry and Oral Health Aarhus University

Press release (Danish)
Overskrift

“Et nyt ph.d.-projekt fra Health, Aarhus Universitet, får os et skridt nærmere mod forståelsen af smertemekanismerne bag spændingshovedpine. Projektet er gennemført af tandlæge Fernando Exposto, der forsvare det d. 28-06-2019.

Spændingshovedpine (TTH) er den mest almindelige form for hovedpine, og når kronisk (CTTH) en betydelig byrde, både menneskeligt og økonomisk. Det antages generelt, at TTH-episoder forekommer på grund af langvarig smertefuld input stammende fra muskler på kraniet. Nogle få undersøgelser har dog antydnet, at den perikranielle ømhed (PCT), der forekommer hos TTH-patienter, kan være en konsekvens af hyppig hovedpine og ikke årsagen. Desuden har de fleste undersøgelser, der vedrører årsag til af TTH, vurderet patienter på gruppeniveau og ikke individuelt, og som sådan er det ikke kendt, hvor forskellige mekanismer af TTH i virkeligheden er.

Fernando har undersøgt TTHs underliggende mekanismer gennem både eksperimentelle modeller hos raske individer og vurdering af smerter profiler, PCT samt psykologiske og søvnvariabler hos TTH-patienter. De vigtigste resultater fra denne afhandling er, at hos raske forsøgspersoner var forøget PCT ikke associerede med en stigning i hovedpine dage. Endvidere blev det påvist, at omkring 50% af CTTH-patienter ikke fik forøget PCT. Det blev også vist, at CTTH-patienter præsenterer sig med forskellige fænotyper, der kan relateres til øget aktivitet i centralnervesystemet, mangelfuld smertemodulation og autonom dysregulering. Nogle CTTH-patienter viste imidlertid ikke tegn på øget centralnervesystem aktivitet eller mangelfuld smertemodulation.

Sammenfattende viste studierne, at hos raske individer synes øget PCT ikke at være en vigtig udløser for TTH-episoder, og at TTH-patienter uden øget PCT er mere udbredt end tidligere antaget. Desuden at ikke alle CTTH-patienter præsenterer sig med tegn på øget centralnervesystem aktivitet eller mangelfuld smertemodulation.

Forsvaret af ph.d.-projektet er offentligt og finder sted den 28-06-2019 kl. 14.00 i Auditorium 4 Building 1613, room 135, Vennelyst Boulevard 9 Institute for Odontology and Oral Health, Aarhus University, Aarhus C 8000. Titlen på projektet er "Somatosensory characterisation and predictive mechanisms of tension-type headache ". Yderligere oplysninger: Ph.d.-studerende Fernando Exposto, e-mail: fernando.exposto@dent.au.dk, tlf. +45 91888985.

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Press release (English)

A new project from Health, Aarhus University, provides an extra mile on the way towards a better understanding of underlying pain mechanisms in tension-type headache. The project was carried out by Fernando Exposto, a dentist who is defending his dissertation on 28-06-2019.

Tension-type headache (TTH) is the most common type of primary headache, and chronic TTH (CTTH) is associated with a heavy burden, both human and financial. It is generally thought that TTH episodes occur due to prolonged pain originating from pericranial muscles. However, a few studies have suggested that the pericranial tenderness (PCT) TTH patients present with may be a consequence of frequent headaches and not their cause. In addition, most studies addressing the cause of TTH have assessed patients as a group and not as individuals, and as such it is unknown how diverse the underlying mechanisms of TTH truly are.

Fernando assessed the underlying mechanisms of TTH using experimental models in healthy individuals and pain profiles, PCT, and psychological and sleep variables in TTH patients.

The main findings of this thesis were that in healthy individuals, experimentally induced long-term PCT did not increase the number of headache days. Furthermore, following a tooth-clenching task, PCT decreased in individuals who did not develop a TTH episode, but not in individuals who did.

Moreover, it was shown that around 50% of CTTH patients did not present with increased PCT and that PCT is substantially increased in patients with both frequent episodic TTH (FETTH) and temporomandibular disorders (TMD) compared with CTTH patients. It was also shown that CTTH patients present with different pain profiles that can be related to increased central nervous system activity, deficient pain modulation, and autonomic dysregulation. However, some CTTH patients showed no signs of increased central nervous system activity or deficient pain modulation.

In conclusion, in healthy individuals, increased PCT does not seem to be a major trigger for TTH episodes. In addition, TTH patients without increased PCT are more prevalent than previously thought and not all CTTH patients presented with signs of increased central nervous system activity or deficient pain modulation.

The defense is public and takes place on 28-06-2019 at 14.00 in Auditorium 4 Building 1613, room 135 Vennelyst Boulevard 9 Department of Dentistry and Oral Health Aarhus University, Aarhus C 8000. The title of the project is "Somatosensory characterisation and predictive mechanisms of tension-type headache". For more information, please contact PhD student Fernando Exposto, e-mail: fernando.exposto@dent.au.dk, tlf. +45 91888985.

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