



Autonomic disturbances precede the pain of Cluster headache

Insights from spontaneous Cluster headache attacks.

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BACKGROUND

Cluster headache (CH) attacks consist of the pre-ictal, ictal and post-ictal phase (*Snoer 2018*). We present three cases in which a spontaneous attack is investigated both in a clinical and paraclinical manner in all three phases. We were able to record all three phases of the attacks including the preictal phase because the spontaneous attacks debuted in the resting period prior an experimental CH study at the hospital (*Guo 2018*, ClinicalTrials.gov [NCT02510729](https://clinicaltrials.gov/ct2/show/study/NCT02510729)). No intervention had occurred prior to the time of headache onset.

CONCLUSIONS

Increased local and systemic parasympathetic outflow precede the pain of spontaneous cluster headache attacks.

Cranial autonomic symptoms and restlessness may be of central origin and not a direct result of the pain.

AIM

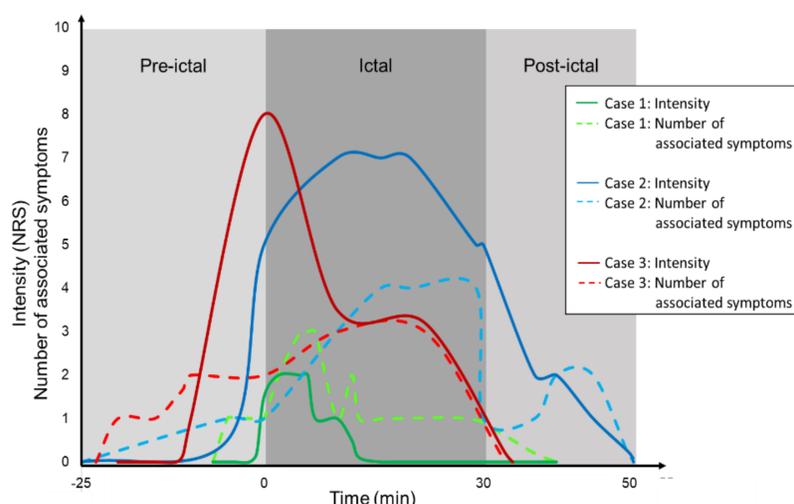
To characterize all phases of spontaneous CH attacks both clinically and paraclinically with neuropeptides (PACAP-38 and VIP) and heart rate variability

METHODS

On three spontaneous CH attacks we recorded: headache characteristics, heart rate variability and plasma levels of pituitary adenylate cyclase-activating polypeptide-38 (PACAP-38) and vasoactive intestinal peptide (VIP) sampled from the cubital vein.

RESULTS

PAIN INTENSITY AND ASSOCIATED SYMPTOMS

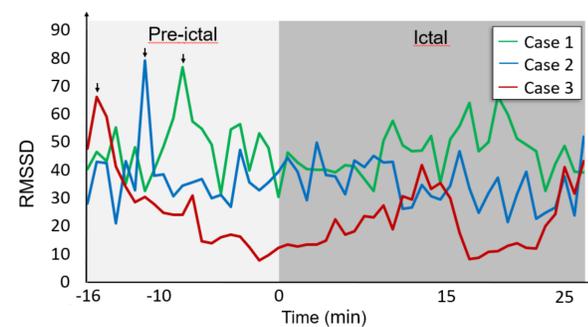


CASE 1: Lacrimation, nasal congestion and restlessness. The attack resolved spontaneously.

CASE 2: Conjunctival injection, lacrimation, rhinorrhea, ptosis and restlessness. The attack was successfully aborted with SPG neurostimulation.

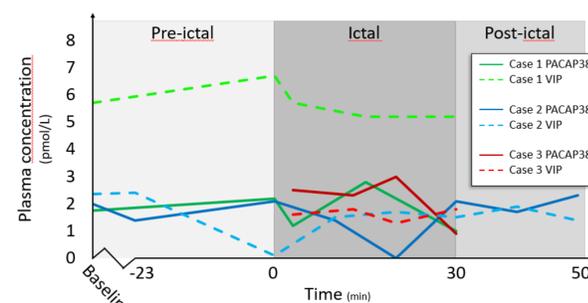
CASE 3: Lacrimation, rhinorrhea and restlessness. The attack was successfully aborted with oxygen.

HEART RATE VARIABILITY



Arrows indicate a parasympathetic spike around 10 minutes before the onset of pain.

PLASMA CONCENTRATION OF PACAP-38 AND VIP



No apparent differences were found in plasma concentrations of PACAP-38 or VIP.



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