

## Headache attributed to ingestion or inhalation of a cold stimulus (Abstract)

### Cefaleia atribuída à ingestão ou inalação de estímulo frio (Resumo)

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Headache attributed to cold stimulus (HACS) occurs during the application of this stimulus externally to an individual or when it is swallowed or inhaled. The pain is described like a short duration one and can be acute. Most studies show a greater susceptibility in migraine suffering individuals as for developing it, but these gears are not well clarified yet.

Objective: Estimating the prevalence and analyzing the clinical characteristics of HACS and its relation to migraine. To evaluate if IHS criteria are enough to the diagnosis of HACS in a population, by using an experimental model of cold stimulus induced headache test.

Method: 414 volunteers were interviewed in a random way, through a self-administered questionnaire identifying age, sex and headache history. Migraine diagnosis was made based on diagnosis criteria of the IHS. To induce the cold stimulus headache, it was used a standardized ice cube (20 x 15 x 35 mm) at the palate area for 90s. The HIT questionnaire test about pain impact was applied to this sample.

Results: Of the 414 volunteers 266 (64.3%) were females and 148 (35.7%) were males. There was an age variety from 8 to 84-year-old ( $30.6 \pm 12.4$ ). Of the tested individuals 153/414 (37%) had cold stimulus induced headache [106/266 females (39.8%) and 47/148 males (31.8%),  $p = 0.126$ ,  $\chi^2$ ]. The frontal and temporal areas were the most affected ones, with bilateral predominance and of the throbbing type. Among the individuals who presented previous headache 147/379 (38.8%) referred pain in the cold stimulus headache test. Among those who had not presented previous headache, only 7/35 (20%) referred pain in the test ( $p = 0.028$ ,  $\chi^2$ ). Of the previous headache carriers 240/379 (63.3%) were migraine sufferers and 139/379 (36.7%) were not migraine sufferers. The cold stimulus induced headache test was positive in 47.9% of the migraine sufferers (115/240) and in 23% of the non-migraine sufferers (32/139) ( $p < 0.0001$ ,  $\chi^2$ ). Migraine sufferers presented a higher percent of sensibility to ice (47.9%) when compared to those who are not migraine sufferers (23%) and to those who had not any history of previous headache (20%) ( $p < 0.0001$ ,  $\chi^2$ ). Of the migraine sufferers 133/240 (55.4%) referred previous history of HACS in relation to the non-migraine sufferers 58/139 (41.7%) ( $p = 0.014$ ,  $\chi^2$ ). Individuals who

had previous history of HACS are five times as likely to evolve it (RR 5.52, IC 3.76 - 8.09). There was not statistics difference in relation to age in the tested groups (positive test  $28.6 \pm 11.8$  versus negative test  $31.7 \pm 15.7$ ,  $p = 0.2008$  Mann-Whitney). Individuals with history of previous headache are twice more likely to evolve HACS (RR 1.939 (0.988 - 3.807). Of the 147 interviewed individuals with a previous history of headache who had a positive test, 71 (48.3%) of them referred HACS at the same habitual place of the previous headache. Volunteers with a positive cold stimulus induced headache test had greater scores in HIT ( $p = 0.0001$ ).

Conclusion: HACS is predominantly frontotemporal, bilateral and throbbing, affecting more commonly migraine sufferers. IHS criteria are imperfect to HACS diagnosis.

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