Tackling opioid overuse for migraine in the Emergency Department: the multicentric Virtual Headache Training Program (VHTP)

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Introduction: Headache is one of the most common causes of visits to the Emergency Department (ED) worldwide, and migraine is the most common identifiable diagnosis in this context. Treatment guidelines include analgesics, non-steroid anti-inflammatories, triptans, gepants, and lasmiditan as first-line treatment for the migraine attack. The use of opioids for migraine attacks is associated with CGRP overexpression, increased risk of migraine chronification, and opioid addiction. Therefore, there is a consensus that opioids should be avoided for treating migraine attacks in most cases. Nevertheless, it is still common practice worldwide in the ED setting to prescribe opioids for migraine attacks.

Objective: To evaluate the impact of a ***virtual headache training program (VHTP)*** for physicians working at the ED of Brazilian tertiary hospitals of a Private Group (United Health Group), in reducing opioid prescriptions for patients with migraine and other headache disorders.

Method: The Virtual Headache Training Program (VHTP) is an online training program that aims to improve the knowledge and skills of emergency department (ED) physicians in the diagnosis and management of primary headaches. The program consists of videos, texts, and tests with multiple-choice questions, and it takes 90 minutes to complete. The VHTP is designed to be a comprehensive and interactive training program to physicians better understand the clinical presentation of primary headaches, the warning signs for secondary headaches, and the evidence-based treatment protocols for primary headaches. All physicians working at the emergency departments (EDs) of the participating hospitals were encouraged to complete the training program starting in June of 2022.

Anonymized data was extracted from all visits to the EDs that received a final diagnosis of migraine (ICD-10 code G43) or unspecified headache (ICD-10 code R51). We analyzed data from all hospitals that provided complete data and in which at least 50% of the ED physicians had completed the VHTP by September of 2022. We evaluated the change in the rate of opioid prescription per visit to the ED motivated by a headache diagnosis.

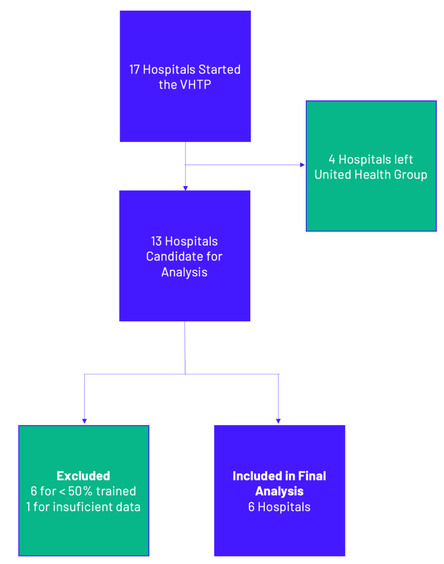


Fig.1 Hospital inclusion flow

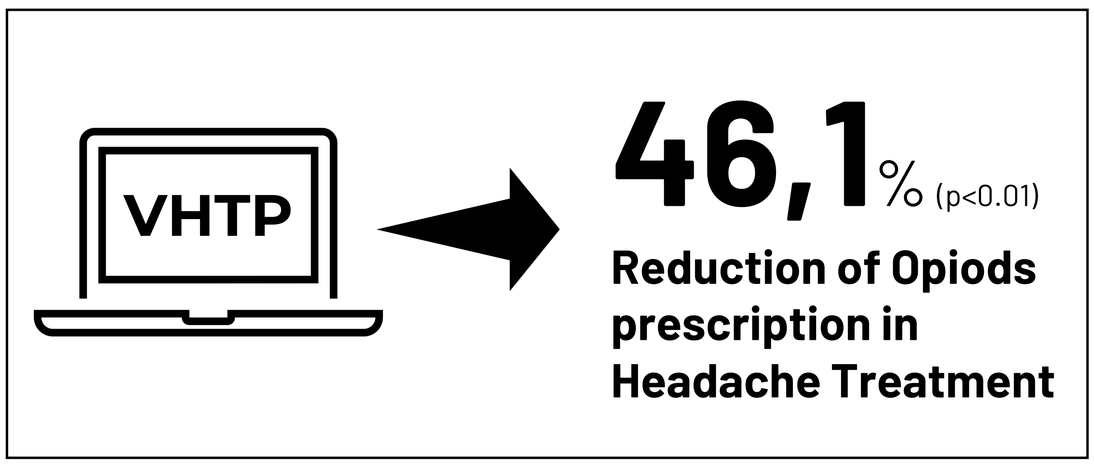
Hospital	ED Opioid prescription rate (%) 2022 (Jan-Dec)	ED Opioid prescription rate (%) 2023 (Jan-Jun)	P
Arujá	445/3589 (12,4)	46/1917 (2,4)	**< 0.01**
Luz	567 /4721 (12,0)	118/2300 (4,9)	**< 0.01**
Mario Lioni	450/2197 (20,5)	113/974 (11,6)	**< 0.01**
Metropolitano	855/4522 (18,9)	397/2036 (16,3)	**< 0.01**
SBC	456 /3234 (14,1)	126/1577 (7,4)	**< 0.01**
Santo Amaro	364/7593 (4,8)	74/3856 (1,9)	**< 0.01**
Total	**3137 /25856 (12,1)**	**874/13375 (6,5)**	**<0.01**

Table 1. Opioid prescription rate per Hospital (number or visits with any opioid prescription / total of visits with final diagnosis of Migraine or Unspecified Headache).

Results: Seven hospitals were included in the final analysis, with a total of 25.856 ED visits in the pre-VHTP intervention period and 13.375 visits in the post-VHTP period. The overall mean rate of opioid use per visit decreased from 12,1% (4,8%-20,5%) in the pre-VHTP period to 6,5% (1,9%-16,3%) in the post-VHTP period. The program achieved a statistically significant reduction of 46,1% in the opioid prescription rate ($p<0.01$) for migraine and unspecified headache.

Discussion: It is well-established that headache education in most medical school and residency programs is insufficient. This can lead to inadequate treatment of primary headaches, such as the overprescription of opioids in the emergency department (ED). Our data show that using simple technology to improve the education of medical staff dealing with headache patients may indeed improve their treatment.

Conclusion: Our data supports the effectiveness of the Virtual Headache Training Program (VHTP) in improving headache treatment in the ED by reducing the rate of opioid prescription.



Limitations: The main limitation of this study was the inaccuracy in defining the final diagnosis. Most patients with "unspecified headache" have a primary headache, but it is possible that some patients with secondary headaches were included in the analysis. This could have biased the results towards finding a reduction in the rate of opioid prescription.

References:

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