Date: 2021-02-18

Summary attachment - study ended before 21 July 2013

EudraCT number: 2011-006206-27

Full title of the study: Does 5-HT polymorphism contribute to pain regulation and efficacy of Granisetron?

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Study ended: 2013-05-23

Link to published article:
https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0168703

Abstract from published article:
The aim of this study was to investigate experimentally if 5-HT3 single nucleotide polymorphisms (SNP) contribute to pain perception and efficacy of the 5-HT3-antagonist granisetron and sex differences. Sixty healthy participants were genotyped regarding HTR3A (rs1062613) and HTR3B (rs1176744). First, pain was induced by bilateral hypertonic saline injections (HS, 5.5%, 0.2 mL) into the masseter muscles. Thirty min later the masseter muscle on one side was pretreated with 0.5 mL granisetron (1 mg/mL) and on the other side with 0.5 mL placebo (isotonic saline) followed by another HS injection (0.2 mL). Pain intensity, pain duration, pain area and pressure pain thresholds (PPTs) were assessed after each injection. HS evoked moderate pain, with higher intensity in the women ($P = 0.023$), but had no effect on PPTs. None of the SNPs influenced any pain variable in general, but compared to men, the pain area was larger in women carrying the C/C (HTR3A) ($P = 0.015$) and pain intensity higher in women with the A/C alleles (HTR3B) ($P = 0.019$). Pre-treatment with granisetron reduced pain intensity, duration and area to a lesser degree in women ($P < 0.05$), but the SNPs did not in general influence the efficacy of granisetron. Women carrying the C/T & T/T (HTR3A) genotype had less reduction of pain intensity ($P = 0.041$) and area ($P = 0.005$), and women with the C/C genotype (HTR3B) had less reduction of pain intensity ($P = 0.030$), duration ($P = 0.030$) and area compared to men ($P = 0.017$). In conclusion, SNPs did not influence experimental muscle pain or the effect of granisetron on pain variables in general, but there were some sex differences in pain variables that seem to be influenced by genotypes. However, due to the small sample size further research is needed before any firm conclusions can be drawn.

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