ANNALS OF GENERAL PSYCHIATRY

MEETING ABSTRACT Open Access

A preliminary study of functional imaging upon placebo analgesia in progressive multiple sclerosis

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From 1st International Congress on Neurobiology and Clinical Psychopharmacology and European Psychiatric Association Conference on Treatment Guidance
Thessaloniki, Greece. 19-22 November 2009

Background

In light of solid data regarding the extent of the placebo response as well as the rigorous arguments in favor of the randomized, placebo-controlled clinical trial, placebo analgesia has widely been tested and documented as one of the most robust placebo effects. Newly developed brain imaging tools such as functional magnetic resonance imaging (fMRI) have provided systematic evidence for the neurophysiological substrates involved in placebo analgesia [1,2].

Materials and methods

In the present study, the replication of a well-documented expectancy manipulation model combined with a placebo intervention via acupuncture [3] was conducted to determine neural mechanisms underlying placebo analgesia in a group of 12 patients (6 females; mean age, 38.4 +/- 4.5 SD) with progressive multiple sclerosis (MS) matched for age, sex, duration of disease, disability and subjective pain ratings. Procedures involved two behavioral testing sessions and one fMRI scanning session as well as the administration of expectancy and pain subjective rating scales.

Results

Subjective pain ratings indicated a significantly greater reduction in the placebo-control group as compared to the untreated condition (before/after treatment). The functional MRI signal difference between post-treatment and pre-treatment sessions was subtracted from the same difference in the non-treatment control group (post- and pre- placebo phases and post- and pre- control phases) indicating significant changes in mainly two of the so-called pain-sensitive brain regions such as the bilateral rostral anterior cingulated cortex (rACC) and the lateral prefrontal cortex.

Conclusions

Such findings are not consistent with research data from a wide range of neuropathies utilizing variant placebo treatments [4], suggesting that placebo analgesia as a result of expectancy can be detected in progressive multiple sclerosis yet, be subserved by the aforementioned brain regions. Future directions involve the study of brain activation patterns as a function of modality of placebo treatments with analgesic effects and identifying MS-specific forms of confounding as related to placebo analgesia.

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Published: 22 April 2010

References

1. Levine D, Gordon NC, Fields HL: **The mechanism of placebo analgesia.** *Lancet* 1978, **2**:654-657.
2. Benedetti F, Amanzio M, *et al*: **The specific effects of prior opioid exposure on placebo analgesia and placebo respiratory depression.** *Pain* 1998, **75**:313-319.
3. Kong J, Gollub RL, Rosman IS, Webb J, Vangel MG, Kirsch I, Kaptchuk TJ: **Brain activity associated with expectancy-enhanced placebo analgesia as measured by functional magnetic resonance imaging.** *J Neurosci* 2006, **26(2)**:381-388.
4. Hoffman GA, Harrington A, Fields HL: **Pain and the placebo: what we have learned.** *Perspect Biol Med* 2005, **48**:248-265.

doi:10.1186/1744-859X-9-S1-S190
Cite this article as: Canellopoulou *et al.*: A preliminary study of functional imaging upon placebo analgesia in progressive multiple sclerosis. *Annals of General Psychiatry* 2010 **9**(Suppl 1):S190.

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