

Diminished Interoceptive Awareness in Fibromyalgia Syndrome

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Introduction

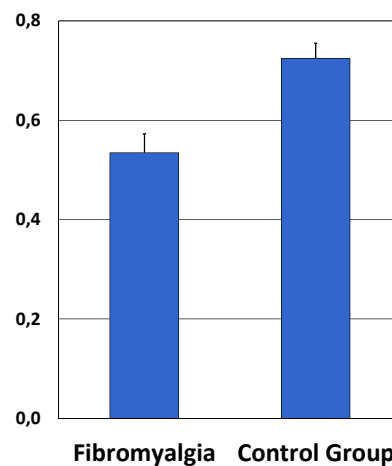
The perception and processing of signals arising within the body has been ascribed crucial importance in classical and modern theories of emotion. An appropriate degree of sensitivity to internal signals, i.e. interoceptive awareness, is associated with higher expression of subjective and physiological indicators of emotional experience and benefits affect regulation and emotion-related behaviors (c.f. Pollatos et al., 2005; Werner et al., 2009). The present study investigated interoceptive awareness in fibromyalgia syndrome (FMS), a chronic condition of widespread pain accompanied by symptoms such as fatigue, anxiety and depression. Based on observations of deficient somatosensory information processing in FMS (e.g. Montoya et al., 2006) and taking into account the affective symptoms of the disease, diminished interoceptive awareness was expected in patients as compared to healthy individuals.

Methods

Forty-five patients with FMS, diagnosed according to ACR-criteria (Wolfe et al., 1990), and 31 healthy individuals participated. The severity of FMS symptoms was estimated using the Fibromyalgia Impact Questionnaire (Esteve-Vives et al., 2007).

Interoceptive awareness was quantified using a heartbeat perception task (Schandry, 1981). During three intervals participants counted the number of perceived heartbeats (N_p), while their actual heartbeats were recorded by ECG (N_a). A heartbeat perception (HP) score was computed according to the formula $HP = 1 - 1/3 (\sum |N_a - N_p| / N_a)$, where high values indicate good accordance between subjectively perceived and actual heartbeats, i.e. high interoceptive sensitivity.

Heartbeat Perception Score



Results

Study groups were compared by means of a MANOVA procedure, with the heartbeat perception score and relevant socio-demographic parameters as dependent variables. The Pearson correlation between heartbeat perception and Fibromyalgia Impact Questionnaire scores was additionally computed.

As can be seen in the figure, the heartbeat perception score was lower in FMS patients than healthy participants ($F[1, 74] = 13.09$, $p = .001$, $\eta^2 = .15$). The groups did not differ in terms of age, Body Mass Index and years of education (all $p > .05$). In the patient sample a significant negative correlation between heartbeat perception and Fibromyalgia Impact Questionnaire scores arose ($r = -.35$, $p = .018$).

Discussion

The results of this study indicate markedly diminished cardiac interoceptive awareness in patients with FMS, as well as a linear association between interoceptive awareness and the severity of FMS symptoms. Numerous studies have demonstrated affective alterations in FMS, including impaired emotional self-regulation and difficulties in emotion recognition, as well as increased emotional avoidance, catastrophizing, and alexithymia (c.f. Duschek et al., 2014 for an overview). Considering the relevance of interoception to emotion processing, it may be hypothesized that poor accuracy in the perception of bodily signals is implicated in the occurrence of these affective peculiarities. Diminished access to bodily signals may restrict FMS patients' ability to integrate these signals during emotional processing, which, by extension, may contribute to the affective pathology of the disorder.

References

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