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Abstract: Without stimulation, the human brain spontaneously produces highly organized, low-frequency fluctuations of neural activity in intrinsic connectivity networks (ICNs). Furthermore, without adequate explanatory nociceptive input, patients with somatoform pain disorder experience pain symptoms, thus implicating a central dysregulation of pain homeostasis. The present study aimed to test whether interactions among pain-related ICNs, such as the default mode network (DMN), cingular-insular network (CIN) and sensorimotor network (SMN), are altered in somatoform pain during resting conditions. Patients with somatoform pain disorder and healthy controls underwent resting functional magnetic resonance imaging that lasted 370 seconds. Using a data-driven approach, the ICNs were isolated, and the functional network connectivity (FNC) was computed. Twenty-one patients and 19 controls enrolled in the study. Significant FNC (p < 0.05, corrected for false discovery rate) was detected between the CIN and SMN/anterior DMN, the anterior DMN and posterior DMN/SMN, and the posterior DMN and SMN. Interestingly, no group differences in FNC were detected. The most important limitation of this study was the relatively short resting state paradigm. To our knowledge, our results demonstrated for the first time the resting FNC among pain-related...
ICNs. However, our results suggest that FNC signatures alone are not able to characterize the putative central dysfunction underpinning somatoform pain disorder.

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