Objective

To examine emotional modulation of pain and nociception in women with (Hx+) and without (Hx-) a history of mood or anxiety disorders, as assessed by the Structured Clinical Interview for DSM Disorders (SCID-I).

Participants

- Healthy women (N=13)
  - With history of mood/anxiety disorders (n=6),
  - Without history of mood/anxiety disorders (n=7)

Participants did not differ significantly in age, race, sexual orientation, years of education, employment, or marital status.

Exclusion Criteria:
- ≥18 years of age
- Current Axis I psychological disorders
- Cardiovascular, neurological, circulatory problems
- Chronic pain condition (e.g., back pain)
- Recent use of anxiolytic medication
- Current use of anxiolytic, antidepressant, and/or antihypertensive medication

Procedure

- Electrode applied to the ankle over the sural nerve, EMG sensors applied to the biceps femoris muscle
- NFR threshold and pain threshold assessed by sending electrical stimulations to the left ankle over the sural nerve
- Level of stimulation intensity set at 120% of nociceptive flexion reflex threshold
- Viewed series of emotionally-charged pictures while randomly receiving electric stimulations to the ankle

Methods: Nociceptive flexion reflex

- Nociceptive Flexion Reflex (NFR) Threshold: biceps femoris EMG activity in the 60-100 ms post-stimulus window
- NFR is a spinally-mediated protective withdrawal reflex elicited by Achilles tendon stimulation
- NFR magnitude correlates with stimulus intensity and pain rating
- Stimulation intensity during the session was set at 120% of NFR or pain threshold
- NFR Window

Methods: Subjective Emotional Ratings

- Self-Assessment Manikin (Bradley & Lang, 1994)
- Valence (Pleasure) Ratings: 1 (unhappy) to 9 (happy)
- Arousal Ratings: 1 (calm) to 9 (excited)
- Subjective emotional reactions assessed following presentation of each picture

Results: Pain ratings

Both groups exhibited modulation of pain ratings by picture content, such that mutilation pictures elicited higher pain ratings compared to neutral and erotica (p<0.01)

Results: Valence & Arousal

Both groups exhibited the expected pattern of valence ratings across picture contents (p<0.01)

No significant group differences in ratings across picture contents

Conclusions

- Hx- women have a disruption of descending modulation of spinal nociception, while modulation of pain is intact.
- History of affective disturbance may have lasting influence on spinal processing of the pain signal.
- Further research should attempt to elucidate this relationship—e.g., are the changes in spinal processing a precursor to, or a consequence of, affective disturbance?

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