Irritable Bowel Syndrome & Repetitive Abdominal Pain

Applied Psychophysiology for Functional GI Diseases
Summary

- Psychophysiology and Functional GI diseases
- A rational for biofeedback interventions in IBS & RAP
- Some data from research
- Biofeedback treatment
- Contacts
- References
Psychophysiology & Functional GI Diseases

- Guts are deeply innervated by sympathetic and parasympathetic nervous system.
- In the dorsal and ventral vagal complexes there is a highly organized viscero-topic representation of the gastrointestinal tract.
- There are documented connections of these areas with higher levels of CNS.
Psychophysiology & Functional GI Diseases

Autonomic Nervous System (ANS) impairment:

Many studies show that IBS and RAP are associated by ANS impairment:
- increased sympathetic activity
- reduced vagal tone

Heart rate variability biofeedback has been shown to be able to restore vagal tone and decrease sympathetic activity.
Rational for biofeedback in IBS & RAP

Brain-Gut interactions

There are bi-directional communication between emotional center in the brain, immune system and gut regulation
Rational for biofeedback in IBS & RAP

Biopsychosocial effects of biofeedback:

- Target the underlying pathophysiology by restoring autonomic function
- Contrasts worries toward the disease
- Reduce stress by increasing the ability to cope with it
Rational for biofeedback in IBS & RAP

1. IBS & RAP are functional diseases that are related to an ANS impairment
   - Reduced vagal tone
   - Increased sympathetic activity

2. Heart Rate Variability biofeedback can increase ANS efficiency and vagal activity

3. Symptoms of IBS & RAP can be reduced by an increasing vagal activity
Some data from research

- Example of impairment of ANS activity in patients with IBS vs Control

from Gevirtz R.
Some data from research

Effects of biofeedback treatment:
- 30 children & adolescent with RAP
- fairly severe pain 4-5 episodes/week
- 6 HRV biofeedback sessions -> mild level of pain 1-2 episodes/week

Pain frequency n. episodes/week

Pain intensity
(Visual Analogue Scale 0-10)

from Gevirtz R.
Some data from research

Changes in pain are mediated by reduced sympathetic activity and restored vagal tone

from Gevirtz R.
Biofeedback treatment

- Biofeedback is a scientific-based self-regulation technique based on learning principles.

- that enables an individual to learn how to change physiological activity in order to improve health.
Biofeedback treatment

Heart Rate Variability (HRV) biofeedback:

- aimed to maximize heart rate variability
- using an individual respiration frequency (around 6 breath/minute)

Increased ANS function
Effects of HRV biofeedback

- Reduced heart rate
- Increased vagal modulation
- Increased baroreflexes efficiency
- Reduced symptoms of anxiety & depression
CONCLUSION

Biofeedback is:

- a **cost-effective** intervention for functional gastrointestinal disorders
- Can be **easily integrated** with pharmacological or psychological intervention
- Have an effect also on **emotional symptoms** and teach a **practical skill** to cope with stress
Contacts

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References


