Barofeedback

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Abstract

Obesity is a complex and challenging disease, which needs both behavioural and medical therapy for management. We suggest the term barofeedback for use in obesity treatment. Barofeedback is a comprehensive biopsychosocio-environmental approach, which uses information gained from awareness of external cues and triggers, subjective internal responses, and objective physiological parameters, to assist the individual and their caregivers in modification and optimization of attitudes, behaviours and choices related to weight management. This concept should be integrated in all obesity care protocols.

Keywords: GLP1RA, obesity, overweight, psychosocial weight management, behavioural therapy.

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Feedback

The term feedback is a portmanteau, derived from two words, 'feed' and 'back'. It means the information that is taken from a person such as a colleague or customer, about one's processes or products, which is then used to improve one's services. Within endocrinology, feedback is the method in which various glands communicate with each other. Usually vertical and negative in nature, endocrine feedback may be lateral and positive as well.[1] Similar concepts are utilized in other field of medicine, including chronic and psychosomatic disease management.

Biofeedback

A related term, biofeedback, is a form of mind-body therapy where information about current physical and physiological status is used to modulate responses to them, and enhance health and productivity.[2] Biofeedback can be based on subjective symptoms, and/or objective biochemical and electrophysiologic parameters. These may be related to central nervous, autonomic, cardiovascular and endocrine function. Related forms of biofeedback are hypoglycaemia awareness training[3] and hunger awareness training, which are used as adjuncts in diabetes and obesity care. Hunger biofeedback is another term used to describe hunger awareness training.[4]

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Challenges

Obesity is a multifactorial disease, with multiple challenges and clinical presentations. The first line therapy for this is intensive behavioural therapy (IBT).[5] IBT, however, is a time-consuming, resources-intensive process. Few health care systems are equipped to provide the 25+hours of therapy that IBT expects, for each person with obesity within a 3 to 12 month period. Impactful behavioural therapy (ImBT) has been proposed as a realistic alternative to this. We suggest the incorporation of barofeedback in obesity treatment algorithms to enhance the utility and usefulness of such therapy.

Solutions

Barofeedback is a comprehensive therapy based on biopsychosocio-environmental factors. Using information gained from awareness of external cues and triggers, subjective internal responses, and objective physiological parameters, it assists the individual and their caregivers in modification and optimization of attitudes, behaviours and choices related to weight management.

Barofeedback trains the individual, and their family member and friends, to identify external factors which facilitate, or interfere with weight management (Table). These may be social or environmental. Awareness of these cues is then linked to psycho-cognitive and physical responses to them. Self-awareness is heightened by exploring symptoms related to thoughts, behaviours and actions. Persons are encouraged to identify unique responses to foods, beverages and spices of differing colour, shape, texture, taste and smell. This helps in

Table: Barofeedback.

• Awareness of external barriers and boosters
• Exploration of responses (neurocognitive, cardiovascular, gastrointestinal)
• Identification of patterns and preferences
• Observation of behaviours and choices (dietary/calorie intake physical activity)
• Upgradation to desired behaviours and responses

differentiating homeostatic, habitual and hedonistic hunger.

Barofeedback can be strengthened by objective measurements of food intake (calorie and carbohydrate country), physical activity (exercise watches) and stress levels. These, in turn, are correlated with physiological parameters such as heart rate, rhythm and blood pressure. In research settings, electro-physiologic studies of the gastro intestinal tract can be added to identify dysfunctional brain-bowel cross talk, and inculcate healthier bowel habits.

Changes made to diet, lifestyle and pharmacotherapy can be monitored using barofeedback mechanisms, and optimized with precision. This is especially important for enhancing GLP1RA tolerance and adherence.

Summary

Barofeedback, just as precision medicine in obesity, is still in its infancy. The concept, however, represents an important advance in our quest to manage obesity. One may begin with structured physiological hunger awareness training, and progress to inclusion of monitoring devices. These will help in initiation and maintenance of desired habits and lifestyles.

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