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Mini Review

Overweight Management in Children and Adolescents

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Abstract

Obesity is a relevant problem among children and adolescents in many developed countries and also in developing countries. Moreover the prevalence of obesity and overweight is increasing in youngsters populations. Form a neuropsychiatric point of view in addition to the medical consequences the condition of obesity can affect the child's mental health and lead to early discrimination, low self-esteem and depression and limits health-related quality of life.

This brief review of the literature offers some evidences and guidelines about the management of weight loss treatment in overweight and obese children and adolescents.

It begins from some recommendation as concerning assessment, treatment of comorbidity and motivation, then it considers treatment options which primarily consist in a progressive change in lifestyle coupled with diet therapy and physical activity.

Then they are considered some specific psychological treatments beginning from psychoeducation until to different forms of psychotherapy which displayed sufficient efficacy in supporting overweight and obesity treatment in children and adolescents. Family involvement in the treatments is of primary importance.

Keywords: *Obesity; Overweight; Children; Adolescents; Dietary Treatment; Psychoeducation; Psychotherapy*

Introduction

Obesity is an relevant problem among adults and children in many countries (both those developed and those developing) [1]. Very preoccupying is that the prevalence of obesity and overweight is increasing in child populations presenting a global public health crisis and dark omens for the future of world health [2]. Form a neuropsychiatric point of view in addition to the medical consequences the condition of obesity can affect the child's mental health and lead to early discrimination, low self-esteem and depression and limits health-related quality of life [3,4].

Obesity is a multifactorial disorder characterised by an imbalance between intake and daily requirement of nutrients. The causes of obesity are complex and include genetic, psychological, biochemical, environmental, social and economic factors. In clinical practice, overweight and obesity are usually defined by the body mass index (BMI) [5,6]. According to the World Health Organization (WHO, 2014) overweight is defined as a BMI from 25 to 29.9 kg/m^2 and obesity as 30 kg/m^2 or greater. Three degrees of obesity are defined form 30 to 34.9 kg/m^2 is defined as slight obesity, from 35 to 39.9 kg/m2 is defined as moderate obesity, higher than 40 kg/m^2 is defined as severe obesity (or health threatening obesity).

Obesity results in significant impairment of health and longevity, increasing individuals' risk of illness and reducing life expectancy. Overweight and obesity are major risk factors for serious chronic diseases, such as type 2 diabetes mellitus, cardiovascular disease, hypertension, stroke and some forms of cancer [1,7].

This brief review of the literature offers some evidences and guidelines about the management of weight loss treatment in overweight and obese children and adolescents.

Assessment

A comprehensive initial assessment may represent a fundamental step to address effectively the weight loss strategies. The information should be collected according to the personal characteristics of the individual. Assessment of personality traits with self- or hetero-administered tools could be useful to standardize and collect also parent's contribution [8]. The timing of the assessment, the degree of overweight or obesity, and the results of previous assessments also deserve attention.

A main aim is to investigate comorbidities, in particular psychiatric ones and all those other factors which could affect the application to weight loss strategies (family environment, developmental problems, relational impairments, social adjustment, etc.) [9,10]. In the assessment and treatment for young obese patients a first target is to differentiate between obese subjects with binge eating (with a Bulimia Nervosa with or without purging conducts, Binge-Eating Disorder or an ED NAS) and obese non-binge eaters. In fact young obese subjects who binge tend to have greater psychopathology such as depression, low self-esteem, anxiety, and difficulties in social relationships [11-13]. To manage the identified comorbidities it is necessary previous to start the weight loss treatment and to give the patient exhaustive information on the risks of overweight and benefits of losing weight, healthy eating and increased physical activity diagnosis, and both historical and psychological reasons for weight gain. It is also mandatory to explore eating patterns, physical activity, and beliefs about eating, physical activity and weight gain that may oppose to weight loss [9].

A third step is to find out what the person has already tried and to explore at what degree it was successful. Then it is necessary to assess the person's readiness to adopt lifestyle changes making a clear distinction between those necessary for losing weight and those for maintaining the weight loss [9].

Treatment and care

The purposes of interventions in children and adolescents are similar to treatment in adults [2,4]. Treatment and care of overweight and obesity should take into account the person's preferences, initial fitness, health status and lifestyle [9].

Weight reduction or deceleration of weight gain are the primary goal of treatment. The recommended mode of intervention is variable and dependent on the child's age and overweight, along with case specific considerations emerged during the assessment.

NICE guidelines suggest that therapy should be a multi-disciplinary and multi-step approach: 1) psychoeducation on healthy weight and lifestyle; 2) prescription of diet and physical activity; 3) possible prescription of drugs; 4) eventual prescription of surgery. It is requested that all the options for treatment are correctly and extensively advised to patients and their families and/or carers according to the patient's physical and psychological condition [9].

The importance of a combined dietary, physical activity and behavioural component has been highlighted by several studies [14-24]. Particularly in pre-adolescent children parental involvement is an important component of treatment programs [2,18]. Family intervention is at the moment a more evidences based intervention with respect to individual psychotherapeutic interventions in minor age subjects. Family interventions coupled with psychoeducation display a short-term effect on weight loss. On turn the weight loss may improve psychological well-being and quality of life and stimulating a more active lifestyle with higher physical activity [6]. Nevertheless a main problem in the long term is that a minority of youngsters are able to maintain their weight loss if the surrounding environment does not change accordingly.

Psycho-educational interventions on lifestyle, can be combined with supportive psychological interventions and family counselling with the specific aim of improving adherence to treatment and maintain changes in the obese or overweight children and adolescents [6,25].

Changing Lifestyle

Interventions addressing lifestyle changes are a first-line strategy to induce and maintain weight loss. These interventions represent a psycho-education towards a correct lifestyle that should be common acquisitions among children and adolescents population. As stressed above, to obtain enduring changes in the lifestyle of young subjects it is fundamental to create a supportive family environment tailoring psychoeducational, counselling or family psychotherapy interventions to the needs and preferences of the family system [9,6,26].

The focus of these interventions may be on either weight maintenance or weight loss, depending on the person's age and stage of growth [9]. Generally psychoeducational interventions aim at increasing youngsters' physical activity levels or decreasing inactivity, improving quality and quantity of eating attitudes and complexive reducing energy intake to the real needs of the subjects. As evidenced in the assessment phase the proposals for lifestyle changes should take into account the social background, the previous experiences of treatment, the individuals' level of risk for health and eventual comorbidities.

Diet changes

Generally the aim of the dietetic therapy is the reduction in fat consumption and the increase in healthy food intake [1]. Dietary modification is generally superior to exercise alone in attaining weight loss, but their combination is the more potent method for creating an energy imbalance [25].

In particular treating overweight and obese children and adolescents, even though the final target of the diet is to reduce total energy intake to balance with energy expenditure, the changes in food restrictions should be progressive and sustainable. It is heartily recommended to refrain from permitting or pushing youngsters to apply extremely restrictive and nutritionally unbalanced diets, because they are ineffective in the long term and can be harmful for physical health of for the outburst of eating disorders. Instead it is wiser to encourage obese children and adolescents to improve their diet even if they do not lose weight rapidly, because there can be other health (both physical and psychological) benefits proceeding the weight loss [9].

Another particular attention should be devoted to tailor dietary changes to food preferences of the youngsters. This allows a flexible and individualized reduction of calorie intake, without severely restrictive diets which are ineffective and potentially harmful in the long term.

Increasing Physical Activity

Although exercise alone marginally improves weight loss, when combined with dietary interventions increased the magnitude of weight loss [25,27]. Encouraging children and young people to increase their level of physical activity is of great relevance even if they do not lose weight as a result, because of the other health benefits exercise can bring [9]. In fact increasing exercise has a positive effect on cardiovascular risk factors compared with sedentary persons, irrespective of initial weight and weight loss [1,25].

Exercise prescriptions should include specific recommendations for the type, intensity, frequency and duration of any physical activity. In particular treating young people it is of primary importance to encourage children to reduce inactive behaviours, such as sitting and watching television, using a computer or playing video games [9].

Drug therapy

Pharmacotherapy is not recommended for children younger than 12 years. In addition no drug is specifically approved for this population thus any weight loss drug should be used only in exceptional circumstances if severe comorbidities are present and as a part of a multi-disciplinary approach [4,9,28].

The only drug approved by the FDA for people over the age of 12 years is Orlistat, nevertheless the treatment with this drug is only recommended if there are physical comorbidities [4]. A correct approach in case of prescription to minor age obese subjects implies the request of informed consent by parents or their legal representing and a regular follow-up to assess the effectiveness, side effects and

compliance to the drug. Moreover, Sometimes they are applied drugs such as fluoxetine and bupropion to treat children and adolescents with obesity. Nevertheless another reason to refrain, as far as possible, from their prescription is that drug interventions generally result in a small BMI and weight reduction over the short term, and they rise doubts concerning possible negative effects on development over the longer term [4].

Moreover, if youngsters do not reach their target weight their self-confidence and belief in their ability to make changes may be decreased. So it is important to offer the higher possible support to help maintaining weight loss when drug treatment is being withdrawn [9].

Psychological Interventions

Particularly in overweight and obese children and adolescents body image perception and self- esteem are strictly related [29]. In fact obesity may affect youngsters health not eminently through physical consequences (that are less frequent with respect to those in adults) but mainly because of psychological distress. This, in turn, may heavily affect youngsters' quality of life producing a vicious circle favouring unduly compensation with food intake which maintains or worsens obesity itself.

In general overweight and obese subjects display higher rates of psychopathology, including mood disorders (depression, low self-esteem, anxiety) and eating disorders (binge eating disorder, night eating syndrome, body image dissatisfaction), as well as impaired health-related quality of life [12,30]. Obese children and adolescents are also at increased risk of discrimination by peers in education environment with an impairment in interpersonal relationships. These two negative conditions may produce significant reduction of perceived quality of life [12,30].

The internalization of the slender beauty ideal promoted by current western society, the development of beliefs that constitute a thinness bodily schema, and the comparison of one's weight and shape to the bodies of other people, such as peers and celebrities are relevant cognitive processes that characterize in particular preadolescent and adolescent subjects [31].

A correct perception of their body shapes depends on the integration of bodily signals from the outside (exteroception) and the inside (interoception) by the developing self of these subjects [32]. The integration of these signals contributes to the representation of the "self-image" which is the ghestaltic "picture" including size, shape, and form of the body with the related feelings. Women with higher BMI have great body image self-discrepancies and impaired interoception consequent the emotional interference due to distress [33]. Helping obese individuals to develop a realistic perception and representation of their body shape might influence the emotional component of body image. This may improve their ability to start and stop eating according to the internal signals of hunger and satiety, resulting in an eating behaviour led by internal instead than external signals. This might, eventually, help them to adopt a healthier eating style.

Psychoeducation represents a first-line approach to encourage weight loss, whilst a wide range of psychological interventions has been used in the treatment of overweight and obesity. The majority of psychological interventions for overweight and obese children and adolescents are cognitive-behaviourally based, and are typically used in combination with lifestyle interventions [34-37].

Psychoeducation

Psychoeducation is focused on the process of behavioral and lifestyle change, on giving direct advice to patients and their parents, and on increasing physical activity. Behavioral topics included self-awareness, self-monitoring, implementation of stimulus control strategies, reducing the rate of eating, motivation for weight loss, the importance of physical activity, goal setting, nutrition education, coping skills training (CST) [22], cognitive restructuring, and contingency management [34,38]. In particular nutrition topics included presentation of the exchange system, portion control, dining out, dietary fat, and a better food choices, presented by a dietitian. Dietary interventions alone are not enough because, for example, they usually involve some degree of energy restriction, which may increase the reinforcing value of food, which may be one reason for the common relapse observed in obesity interventions [16].

Innovative and efficacious weight control intervention delivery approaches could improve psychoeducation for young obese patients, such as telephone- and mail-based behavioral intervention initiated in primary care which resulted in better weight control efficacy relative to care typically provided to overweight adolescents. [37].

Family therapy

It has been shown that family involvement is primary for a better outcome of obesity treatment in adolescence. In fact, intervention in the family context has a greater impact on the adolescent child than has individual counseling, improving the chance of maintaining a socially and medically acceptable weight. Family therapy is a form of brief therapy (5 - 10 sessions), that involves the whole family: the therapist defines what happens during treatment and designs strategies to create change in the system, after indentifying dysfunctional structures. During sessions, the therapists reinforces the resources of the family and tries to create an optimal emotional climate for helping the obese child [38,39]. Family-based interpersonal psychotherapy has been also proposed as and efficacious intervention in pre-adolescents with loss-of-control-eating [40]. As previously seen, comprehensive family-based programs could report positive long-term outcomes [22], such as reduction in the percentage overweight at the end of the programme, and a greater reduction in food stimuli in the home [17], promoting a healthy lifestyle and well-being of obese children instead of weight management [41].

Also in this case, an innovative strategy based on technology can be used: for example, the website could provide nutrition education and behavior modification for adults and adolescents using a family-oriented format, i.e., a program that invited the parents, the child, and other members of the family to be involved using mutual problem-solving and behavioral contracting [24].

Cognitive-Behavioral Psychotherapy

Body dissatisfaction and low self-esteem, as previously seen, are two fundamental aspects of the psychopathology in obese adolescents. This also affects the social relations, that becomes dysfunctional. Cognitive-behavioral therapy is focused on these crucial aspects.

Self-perception related to physical appearance may be an important treatment component for adolescents with obesity. This highlights the importance of identifying strategies for increasing attendance in adolescent weight control trials. One of the challenges to behavioral treatment is to identify behaviors that can substitute for eating as eating is decreased when obese persons reduce energy intake [16,36,42,43]. Internet-based cognitive-behavioral treatment models have recently been proposed, with encouraging results [44].

Group Therapy

The group treatment, which stressed a health-promoting lifestyle and consisted of 15 group sessions during 6 months, is more effective than the current practice, individually given counseling consisting of two appointments, in the treatment of obesity in children. Group treatment included the same components such as promoting healthy diet, increasing physical activity and decreasing sedentary lifestyle with the help of behavioral therapy [41].

Conclusion

Management of weight in children and adolescents is a primary need of developed and developing countries. Notwithstanding the relevant pathogenic role of parental dynamics in the outburst of obesity [11] psychological treatments are non-able, alone, to produce sufficient weight loss. A substantial change in lifestyle of youngsters is needed, including progressive changes in quantity and quality of food intake coupled with an increase of physical activity. All changes should be obtained progressively according to individual's characteristics with regards to personality traits, comorbidity and motivation issues. The involvement of the family in the treatment is mandatory since the first phases of the treatment, until to the possible choice of a family therapy. Instead, individual psychoeducation and psychotherapy are less effective in producing weight loss even if they could be relevant for the management of comorbidity and for the stimulation of personality development needed to maintain lifestyle changes.

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