



Our Experience with Two Bulgarian Products in the Management of Metabolic Diseases



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Introduction

Obesity is a chronic metabolic diseases which leads to many co-morbidities and high prevalence of mortality [1,2]. The incidence of

obesity and related diseases increases constantly (Figure 1-3) [3]. Recently, very much is stressed on the meaning of food supplements in the management of metabolic diseases [4-6].

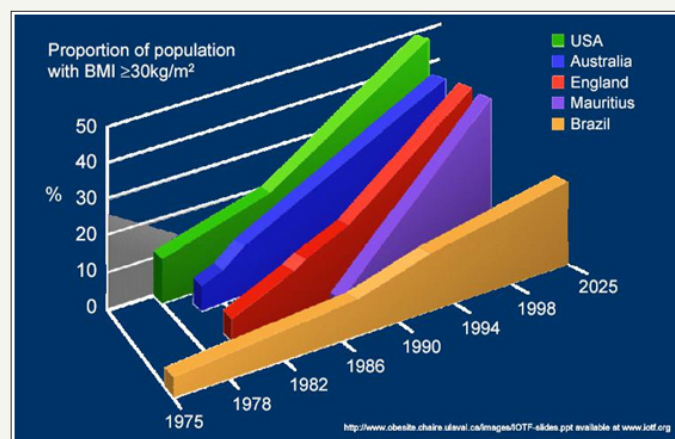


Figure 1: Expected increase in the incidence of obesity.

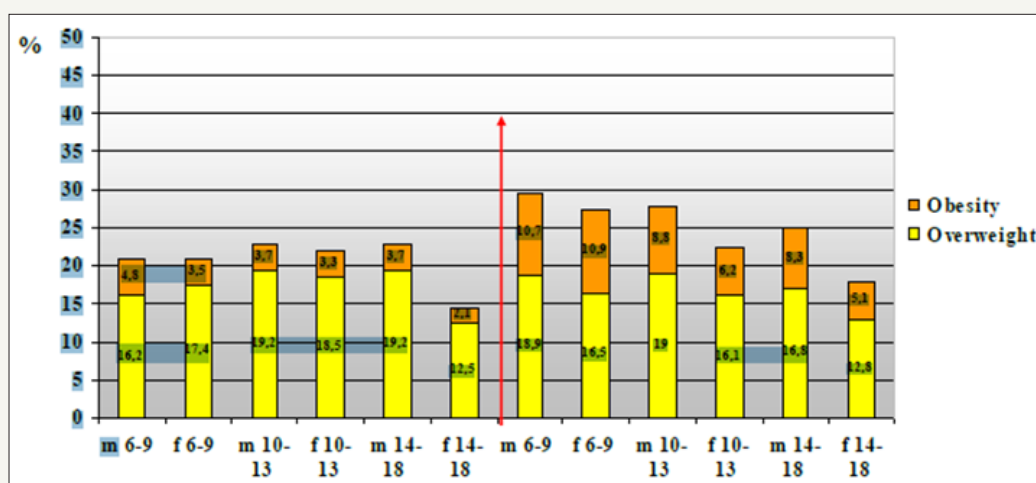


Figure 2: Overweight and obesity prevalence in schoolchildren (National survey on nutrition and nutritional status of schoolchildren in Bulgaria -1998, 2010-2011) [2].

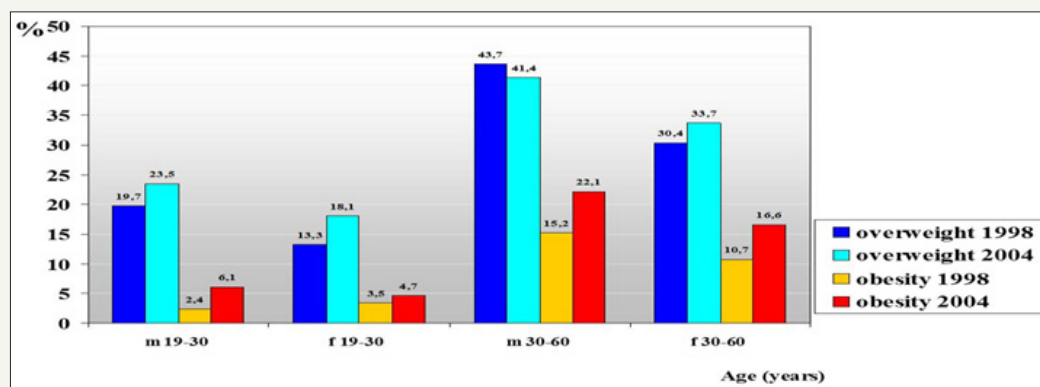


Figure 3: Prevalence of Overweight and Obesity among adults (19-60 years old) National Monitoring of Dietary Intake and Nutritional Status, 1998, 2004 [2].

Aim

The aim of this study is to present our experience in the management of the metabolic parameters in the obesity with two our products.

Materials and Methods

Alginates

Clinical study: A total of 120 obese patients (105 given alginates and 15 placebo control group) with mean age 37, 8 years, BMI-33, 7 were followed up for the period of 45 days. Anthropometric indexes were measured as follows: body weight (kg), BMI (kg/m²), waist to hip ratio, fat mass, cholesterol and triglycerides.

Experimental study: 18 male rats Wistar with mean age 4 year were randomized in 2 groups-control group and experimental group receiving alginates. After 3 weeks the body weight, cholesterol, triglycerides, blood sugar and ghrelin were measured.

Glucomanan

Glucomannan is a water-soluble polysaccharide, extracted from the root of *Amorphophallus konjac*. It is considered a dietary fibre. Glucomannan is a food additive used as an emulsifier and thickener. Dissolved in water, glucomannan gels, absorbing up to 150 times more water than its own weight [7]. A total of 22 subjects (19 women and 3 men) have participated in the study. The following parameters were studied: mean age was 46.8 years, mean body mass index (BMI)-33.9kg/m², mean fat mass (FM)-42.09%, and mean visceral fat mass (VFM)-11.4. All subjects received 3gr of the food supplement with Glucomanan, dissolved in 200ml water before each meal, and 200ml water after the meal three times/ daily for a 60-day period. At different time intervals the enrolled subjects underwent anthropometric and bio-impedance measurements with Tanita 420. They didn't receive any other dietary and physical activity advices.

Results

Alginates

Clinical study: We found statistically significant reduction of BMI and waist circumference in the group. Total cholesterol, LDL-cholesterol and triglycerides were also statistically significantly

reduced in the experimental group. Experimental study: The data showed reduction of body weight with 32.5% ($p < 0, 01$) more compared to the controls. A suppression of ghrelin production was demonstrated.

Glucomanan

The food supplement was very well tolerated except in four patients who suffered from flatulence, and mild diarrhea. At the end of the 60-day period a reduction of all studied parameters were demonstrated as follows: mean BMI with 7.3% ($p < 0, 01$), mean FM with 4.9% ($p < 0, 01$), and mean VFM with 5.3% ($p < 0, 05$).

Discussion

The effect of alginates containing food supplement is based on the property of the compounds of alginic acid (organic acid originating from kelp) to produce gel in an acid medium (the gastric juice) which is insoluble and hard to be assimilated in to the organism [8-11].

According to the European food safety authority

Galactomannan contributes to the maintenance of normal blood cholesterol levels in blood. Glucomannan in the context of an energy restricted diet contributes to weight loss [12,13].

Conclusion

- Our studies suggest that alginates exert beneficial effects on the metabolic parameters in both animal and human obesity.
- The use of a food supplement with Glucomanan has a beneficial effect on the metabolic health in obese adults.

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