The Pivotal Role of Microbiota in Obesity

L. Bonfrate and P. Portincasa

Clinica Medica “A. Murri”, Department of Biomedical Sciences and Human Oncology, University of Bari, Italy

*Corresponding author: Leonilde Bonfrate, MD, University of Bari Medical School, Clinica Medica “A. Murri”; Department of Biomedical Sciences and Human Oncology (DIMO), Policlinico Hospital, 70124 Bari, Italy, Tel: +39-080-5478234, Fax: +39-080-5478232, E-mail: leonilde.bonfrate@uniba.it

Abbreviations
BMI: Body Mass Index, FIAF: Fasting-Induced Adipocyte Factor, LPS: Lipopolysaccharides

Obesity is a chronic disease defined as body mass index (BMI) of ≥30 kg/m2. Both obesity and overweight (BMI of 25 to 29.9 kg/m2) represent a major public health issue worldwide in children, adolescents and adults leading to increased morbidity and mortality. In general, obesity is a complex disease that results from the interplay between several determinants. From time to time, a role for host genetics, environment, biological factors, pregnancy and lactation history in mothers, social and cultural influence, and imbalance between energy intake and expenditure has been advocated [1-4]. Dietary factors modulate the composition of the gut microbiota [5].

Recently, an increased number of studies have evaluated the role of intestinal microbiota in the development of the epidemic obesity. Intestinal microbiota play a pivotal role in regulating endogenous energy and metabolic pathways [6]. Alterations in gut microbiota have been observed in obese animals and humans according to phylum-level, bacterial diversity and representation of bacterial genes and metabolic pathways [7,8]. In this respect, an increase in Firmicutes level and low-grade inflammation [14].

To date, the accumulating evidences suggest that the gut microbiota contribute to adiposity by modulating the metabolic network involved in bioenergetics. Thus, manipulation of intestinal microbiota represents a novel and fascinating approach to shift a dysmetabolic status into a healthy condition. Moreover, by modifying host energy balance and treating obesity is a chance to prevent other metabolic diseases.

References