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Programming of appetite: Integration of nutritional requirements and endocrine system during early life?

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Abstract

In recent decades, the incidence of obesity has increased dramatically and now represents a real public health issue globally. Obesity is also associated to a whole host of related diseases such as type 2 diabetes, hypertension, cardiovascular disease, critically threatening our life expectancy. Since its “explosion” in industrialized countries, primarily in the United States, obesity is now spreading to the developing world and emerging countries such as China, India and Brazil. Rapid nutritional transition (diet, physical activity and health) in our lives and our eating patterns occurred on a limited time interval of one or two generation. As a consequence, a relative inadequacy of physiology to this new condition of high energy intake is observed. The organism is indeed able to modify its program of development based on the perception of the availability of substrates present in the external environment. These adaptive phenomena "metabolic programming" occurs especially during periods of development *in utero*. The integration of nutritional requirements by the body is achieved thanks to the endocrine system that translates environmental information by changes in hormone levels. Among these hormones, recent studies of particular importance argue the fact that leptin, a cytokine mainly produced by adipose tissue, could play a key role in the programming of appetite and general development. A new perspective of using postnatal leptin treatment in the intra-uterine growth retarded babies to alleviate defects of programming is discussed in this lecture.

Biography

Latifa Abdennebi-Najar has completed her PhD at University Pierre& Marie Curie in Life sciences (Paris, France) and postdoctoral studies at National Institute of Agriculture (INRA) and National Institute of Health (INSERM) in France. She is the director of EGEAL research Unit (Gene Expression and Epigenetic Regulation by nutrients) at LaSalle Institute (France). Executive board at France National networks (ANTIOPES, ANSES). Executive board and treasurer at SF-DOHAD society