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Newer pathways: Interactions between bone and energy metabolism

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Abstract

As people are beginning to live longer, chronic non-communicable diseases such as diabetes and osteoporosis (reduction of bone mass) are becoming common. People with diabetes tend to be heavier and have increased bone mineral density (BMD); It was logically assumed that subjects with increased BMD were not prone to fractures, especially type 2 diabetes; however clinical studies were soon to show that despite an apparently high BMD, fractures were more common in type 2 diabetes mellitus. Physiological and molecular biological studies performed to understand the relationship between energy metabolism and bone-derived peptides showed a complex relation between the two systems. Bone influences glucose and lipid metabolism through known factors such as leptin and osteocalcin, as well as by transcription factors such as FOX01 and ATF4. In addition to being a supporting and protective structure, bone is an active endocrine organ producing proteins that influence and are influenced by glucose and energy metabolism. In addition methods to prevent and manage diabetes mellitus (physical exercise to prevent decline of cognition, muscle mass, balance and of medications to control dyslipidemia and hypertension) can as well be applied to prevent fractures as a result of imbalance and tripping over in subjects with diabetes.

Biography

GR Sridhar did his MD (Medicine) from Andhra University and DM (Endocrinology) from All India Institute of Medical Sciences. He is Director of Endocrine and Diabetes Centre, Visakhapatnam. A Fellow of the Royal College of Physicians and Surgeons (Glasgow) and of American College of Endocrinology, he was the President of Research Society for the Study of Diabetes in India (2010) and is currently the Vice President of Endocrine Society of India. He was the founding editor of Indian Journal of Endocrinology and Metabolism. A contributor to major medical textbooks in India, he has more than 250 peer-reviewed publications.