

Abstract

Increasing incidence of type 2 diabetes represents one of the principal threats to human health in the 21st century. Strong evidence indicates that the rise in incidence of type 2 diabetes is correlated with increasing levels of obesity and that important factor playing role in the development of this disease is an elevation in circulating glucose and fatty acids. Chronically increased concentration of these nutrients was shown to induce apoptosis of pancreatic beta-cells that subsequently contributes to diabetes progression. Despite intensive research, molecular mechanisms underlying this beta-cells loss are still unclear. However, there is increasing evidence that one of the key processes involved in glucose and fatty acid-induced beta-cell death is induction of endoplasmic reticulum stress. The aim of this work is to summarize the recent knowledge about induction of apoptosis by endoplasmic reticulum stress in pancreatic beta-cells in relation to type 2 diabetes.