

Crosstalk between reactive oxygen species and pro-inflammatory markers in developing various chronic diseases: a review

ABSTRACT

The inflammation process in the human body plays a central role in the pathogenesis of many chronic diseases. In addition, reactive oxygen species (ROS) exert potentially a decisive role in human body, particularly in physiological and pathological process. The chronic inflammation state could generate several types of diseases such as cancer, atherosclerosis, diabetes mellitus and arthritis, especially if it is concomitant with high levels of pro-inflammatory markers and ROS. The respiratory burst of inflammatory cells during inflammation increases the production and accumulation of ROS. However, ROS regulate various types of kinases and transcription factors such nuclear factor-kappa B which is related to the activation of pro-inflammatory genes. The exact crosstalk between pro-inflammatory markers and ROS in terms of pathogenesis and development of serious diseases is still ambitious. Many studies have been attempting to determine the mechanistic mutual relationship between ROS and pro-inflammatory markers. Therefore hereby, we review the hypothetical relationship between ROS and pro-inflammatory markers in which they have been proposed to initiate cancer, atherosclerosis, diabetes mellitus and arthritis.

Keyword: Atherosclerosis; Arthritis; Cancer; Diabetes; Reactive oxygen species (ROS); Pro-inflammatory markers