

Endoplasmic Reticulum Stress Pathway As Targeting Therapy In Non Communicable Diseases: A Narrative Review

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ABSTRACT

Background: World Health Organization (WHO) declared that non-communicable diseases still become the main health problem by including it in goal 3.4 in sustainable development goals and also a major cause of mortality worldwide. Based on prevalence, mortality in non communicable diseases is dominated by cancer, cardiovascular disease, diabetes mellitus, and chronic lung disease. Although non-communicable diseases have complex mechanisms and signalling pathways, the role of endoplasmic reticulum stress has been known for its association with abnormal metabolism in non-communicable diseases. This narrative review aims to investigate targeting therapy in non-communicable diseases based on the endoplasmic reticulum stress pathway.

Method: The literature search was carried out through several electronic databases (PubMed and Google Scholar), using keywords “endoplasmic reticulum stress”, “non-communicable disease”, “therapy”, “drugs”. Full English text publication between 2010 to 2021 was selected for identification.

Result: The endoplasmic reticulum stress occurs due to adaptive and defensive response to lack of oxygen (hypoxia), hypoglycemia and hyperglycemia, hyperthermia, starvation, calcium imbalance, the redox milieu, and also the imbalance between oxidants and antioxidants. Those conditions can impact protein folding in endoplasmic reticulum stress cause accumulation of unfolded and/or misfolded protein that leads to activation of unfolded protein response (UPR). A number of studies in non-communicable diseases such as diabetes mellitus, cardiovascular disease, and cancer showing that some compounds can ameliorate endoplasmic reticulum stress by targeting the pathway.

Conclusion: Targeting therapy in the endoplasmic reticulum pathway can be a novel strategy for the treatment of non-communicable diseases.

Keywords: Endoplasmic reticulum stress, non-communicable disease, therapy.

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- Fonts: Times New Roman
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- Margin: 3 left, 2 right, 2 top, 2 bottom

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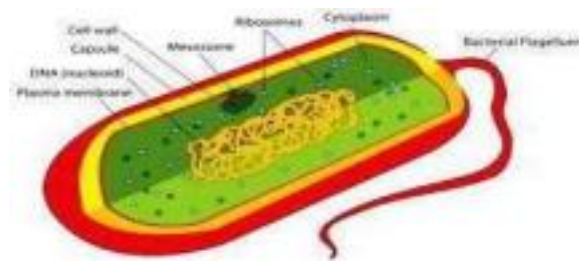


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