

Diabetes mellitus: it's effect on endodontic infections

Editorial

Diabetes mellitus is a metabolic disease characterized by high blood glucose level mainly due to resistance to insulin or its deficiency. It is considered as a complex and pernicious syndrome marked by abnormal carbohydrates, lipid and protein metabolism in the body.¹ Risk factor for diabetes may be influenced by both genetic and environmental variables as shown in Fig.1. It is observed by clinical studies that there is a higher incidence of persistent periapical infections as well as resistance to contemporary root canal therapy in diabetic patients.² The prevalence of type 2 diabetes mellitus for 2010 is found to be 285 million people globally, which is projected to increase to 438 million by 2030; a 65 % increase (Figure 1).³

Studies have shown that patients with a history of diabetes mellitus and periapical lesions have significantly reduced healing following endodontic therapy compared with that for the non-diabetic population.⁴ This can be attributed to the altered immune system in diabetic patients with associated delayed healing and compromised immune responses as shown in Figure 2. Periapical pathology triggers the activation of the broad axis of innate immunity through upregulation of pro inflammatory cytokines from monocytes and polymorphonuclear leucocytes. Dysfunction of the immune response in diabetic patients may hamper the secretion of these cytokines that may lead to persistence of periapical pathology in the presence of

Volume 4 Issue 1 - 2016

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Received: January 01, 2016 | **Published:** February 4, 2016

bacterial biofilm.⁵ Moreover, previous studies have revealed that ecology of oral micro flora changed in diabetic patients to a more virulent microbial profile compared to non-diabetic patients.

The current evidence of increase in the prevalence of diabetes mellitus world over and the relative resistance to contemporary endodontic therapy in diabetic patients as well as the havoc of developing antibiotic resistance worldwide is leading to an alarming situation. Hence, further research in this field is highly recommended to develop new innovative therapeutic approaches.

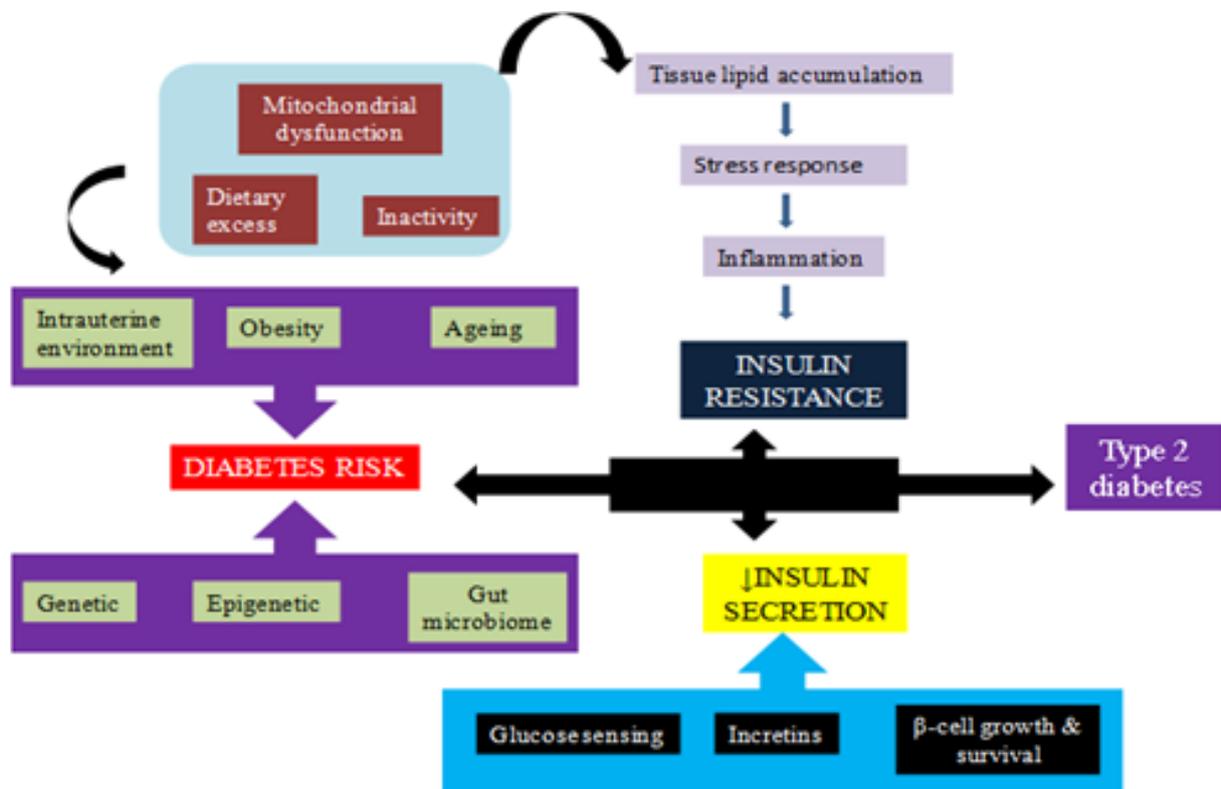


Figure 1 Pathogenesis of type II diabetes.

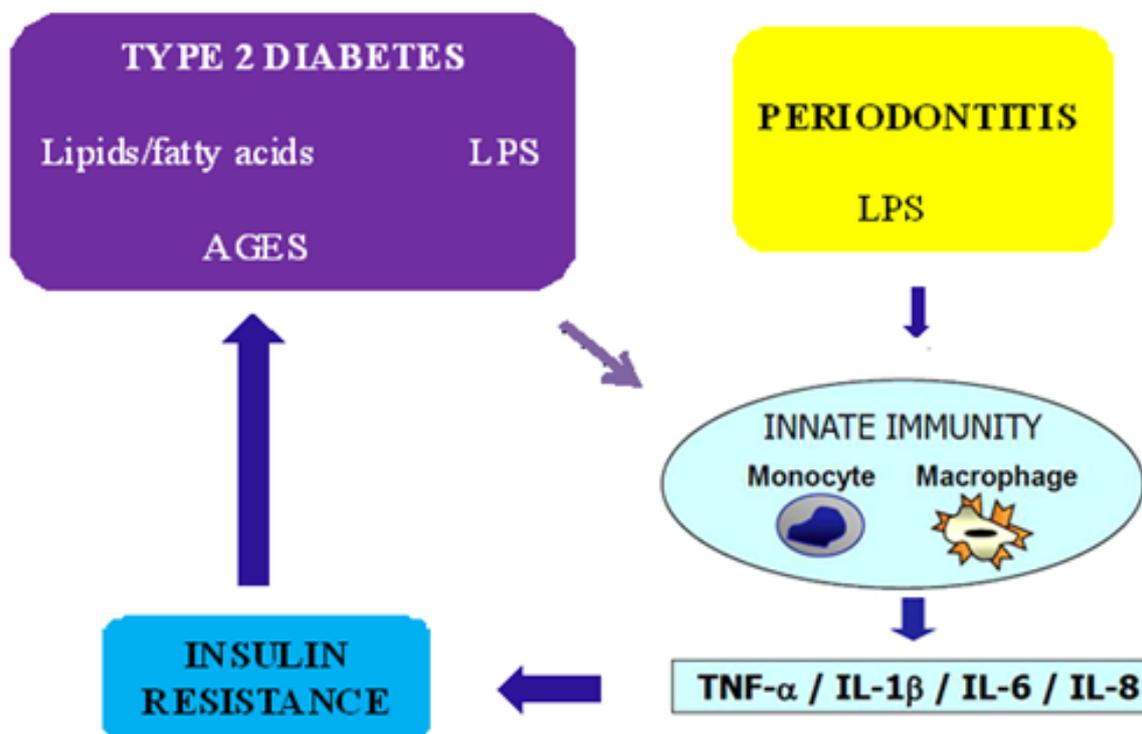


Figure 2 Immunomodulation in type II diabetes.

Funding

None.

Acknowledgements

None.

Conflicts of interest

Authors declare that there is no conflict of interest.

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