

27th International Conference on

Diabetes and Endocrinology

May 16-17, 2019 | Prague, Czech Republic

Current trends and gaps in managing obesity and type 2 diabetes – Discovery of targeted treatment modalities for effective management and prevention

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The prevalence of obesity continues toward an upward soaring trend worldwide. Despite frontiers in innovative treatment and management plans obesity is currently an epidemic. The pathophysiology of chronic obesity naturally provokes the onset of type 2 diabetes therefore, obesity is a major risk factor for type 2 diabetes. Both obesity and diabetes rob patients of their quality of life and threatens catastrophic complications. Due to the complex multi factorial nature of the pathophysiology of obesity and its complications multilayered treatment is required. Knowing accurately the interplay of specific biomolecules during the early pathogenesis of obesity and type 2 diabetes will shed light in developing early diagnosis tests and more precise treatment plans. We conducted a literature study of Medline, the Cochrane Database of Systematic Reviews, and citation list of relevant publications. Subject heading and key words used include current trends of obesity and diabetes, current diagnostic methods for diabetes, definition of obesity, treatment and management of obesity/diabetes, early biomolecules in the pathogenesis of pre-diabetes, biomolecules linking obesity

and diabetes, current issues and limitations in treating obesity and diabetes. Candidate of early biomolecules for diagnosis of pre-diabetes were extracted from evidences learnt from integrated metabolomics, transcriptomics and proteomics studies. Biomolecules were identified, mapped on the pathogenesis pathway of pre-diabetes and selected based on their merits in the early pathogenesis process. Subsequently, a proposed future study protocol was developed to evaluate our hypothesis: “Together with weight control management, pharmacological treatment targeting on early biomolecules in the pre- diabetes state will prevent the development of type 2 diabetes in over weight and obese individuals”. An early biomolecules array for pre-diabetes will be developed and used as a tool in the proposed clinical study. The outcome of this study will impact on lowering the prevalence of type 2 diabetes patients, complications of obesity and diabetes and would overall eases the domestic and worldwide economic burden.

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