DIABETES MELLITUS AND TUBERCULOSIS: A CENTURY OLD DUO REVISITED

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Abstract: The evidence of the association between diabetes mellitus (DM) and tuberculosis (TB) can be traced as far back as in the times of the Roman Empire. This is documented in Richard Morton’s 1694 Phthisiologia - a treatise on consumption. The great Indian physician Susruta in about 600 A.D. was aware of the association between DM and TB. Also, Avicenna in about 800 A.D. commented that phthisis (earlier name for TB) frequently complicated diabetes. Root, in reviewing the history of the association of DM and TB, noted in the second half of the 19th century that the patients who recovered from diabetic coma were doomed to die of pulmonary TB. Also, Root reported in his study that 2.8% of 1373 hospitalized diabetics had TB. Bouchardat in 1883 found at autopsy that every mortality case attributable by DM had tubercles in the lungs. Indeed, half a century ago expert clinics which were established for patients referred to as ‘tuberculous diabetics’ appeared to have been successful in reducing high mortality in this target patient population. TB is a global pandemic that affects 9 million new persons and is attributable to 2 million deaths each year. The focus of this research was to discuss the epidemiology, biological plausibility of the link, and management and treatment outcomes of patients with the duo epidemics. Hence, the objectives of this research were as follows: 1) to revisit the long forgotten epidemics duo – DM and TB and to estimate their potential burden on public health and the health care delivery system; 2) to explain the biological plausibility of the causal link between DM and TB and to further investigate the directionality of the causal link; 3) to hypothesize the economic burden of the epidemics duo given the projected prevalence of DM and TB worldwide; and 4) to provide adequate data to support a Call to Action in prevention and treatment of the duo – DM and TB. Using systematic review of the literature and meta-analytic techniques, the association of DM and TB was demonstrated. Data was obtained from published peer-reviewed scientific papers and large public databases using the Center for Disease Control and Prevention data query system (CDC Wonder) and the World Health Organization InfoBase Query System. The information and data examined in this study resulted in the following inferences: 1) there is definitely association between DM and TB; 2) though the directionality of the causal link is still being debated, a number of studies have shown that in a greater percentage of persons, TB develops after the onset DM; 3) the effectiveness of TB medications are comprised in the presence of DM; and 4) biological plausibility of the link between the duo epidemics (DM and TB) is evident. Public Health professionals and health care practitioners need to revisit the link between DM and TB, in the context of prevention and treatment. TB should not only be examined or given attention only in the context of HIV but in other chronic diseases, especially cardiovascular disease, the number one killer in most developed nations and an emergent threat to most developing countries.

Key words: Diabetes Mellitus, Tuberculosis, Prevalence, Incidence, Pulmonary, Treatment, Causal Link, Directional Relations, Call for Action, Meta-analytic Techniques, Biological Plausibility.