Mycobacterial Diseases
ISSN: 2161-1068

Tiago and Pizzol, Mycobact Dis 2017, 7:2
DOI: 10.4172/2161-1068.1000238

Letter to Editor Open Access

Prevalence of Tuberculosis and Diabetes

Armindo Tiago[1] **and Damiano Pizzol**[2*]

[1]*Department of Physiology, Mondlane University, Maputo, Mozambique*

[2]*Operational Research Unit, Doctors with Africa Cuamm, Beira, Mozambique*

[*]***Corresponding author:*** *Damiano Pizzol, Operational Research Unit, Doctors with Africa Cuamm, Beira, Mozambique, Tel: +39-3668731237, E-mail:* d.pizzol@cuamm.org

Received date: May 10, 2017; **Accepted date**: May 15, 2017; **Published date**: May 22, 2017

Citation: Tiago A, Pizzol D (2017) Tuberculosis and Diabetes. Mycobact Dis 7: 238. doi:10.4172/2161-1068.1000238

Letter to Editor

Dear Editor,

Tuberculosis (TB) is one of the leading causes of death worldwide and, although great efforts have already been made, the way to defeat this disease is still long [1]. The burden of TB is higher in Sub-Saharan Africa and low income countries where, another increasing plague, the diabetes mellitus (DM) is affecting more and more people. The rapid increase of DM and its coexistence with TB and HIV is a clear example of overlap and interaction between communicable and non-communicable diseases requiring a multidisciplinary and integrated approach [2]. The association between TB and DM, in particular in low and medium income countries, has been showed to cause a mutual worsening of the natural history of both diseases. Although the pathophysiological mechanism is still unclear, it has been observed that each disease may adversely affect the outcomes of the other, in terms of delayed diagnosis and healing, severity of symptoms, mortality [2]. However, to date, contrasting data are available regarding TB prevalence in diabetes and vice versa and, recent findings suggest a high burden of diabetes among TB patients but low prevalence of TB among DM patients [3]. Apparently, this is a contrast that could be partially explained by social determinants of health (SDH). In fact, growing evidence suggests that the lack of efficacy in containing TB and the presence of multi drug resistance (MDR), is due to many factors including SDH [4]. SDH are defined as conditions in which people are born, grow, live, work and get old having an immediate impact on health and are greatly influenced by the distribution of money, power and resources [5]. In particular, low education, low income and alcohol abuse are significant predictors of therapy failure and MDR in people with TB.

On one hand, in fact, the high prevalence of DM in TB patients is a consequence of increased susceptibility. In fact, malnutrition and physical inactivity lead patients with TB to stimulate adrenaline, glucagon and cortisol at the same time, thus increasing glucose levels [6]. Moreover, the higher incidence of chronic calcified pancreatitis in patients with TB and vitamin A, C and D deficiencies might also explain the impaired glucose tolerance and increased risk of DM [7].

On the other hand, although diabetes seems to be a “risk factor” for TB, affecting innate as well as adaptive immune responses [8], the presence of diabetes in many cases, especially in developing countries, is to mean a well-being state and, thus, good SDH.

Regardless of the pathophysiologic basis, especially in developing countries, both diseases are increasing and represent a huge health, social and economic burden. For this reason, it is mandatory to strengthen the efforts in two main aspects: clinic and scientific.

In fact, on one side, it is necessary to develop integrated and multidisciplinary approaches in order to improve the prevention, the screening and the management of dual diseases. Moreover, to achieve more effective results, it is also critical to perform early diagnosis, treatment and management of co-morbidities and, regarding latent TB, preventive therapy.

On the other side, the complexity of the association between TB and DM requires a great effort from the scientific community to clarify the many outstanding issues and to develop appropriate and adequate strategies of health policies in different settings.

References

1. WHO (2017) Global Tuberculosis Report 2016.
2. Pizzol D, Di-Gennaro F, Chhaganlal KD, Fabrizio C, Monno L, et al. (2016) Tuberculosis and diabetes: Current state and future perspectives. Trop Med Int Health 21: 694-702.
3. Workneh MH, Bjune GA, Yimer SA (2017) Prevalence and associated factors of tuberculosis and diabetes mellitus comorbidity: A systematic review. PLoS One. 12: e0175925.
4. Hargreaves JR, Boccia D, Evans CA, Adato M, Petticrew M, et al. (2011) The social determinants of tuberculosis: From evidence to action. Am J Public Health. 101: 654-662.
5. Atkinson S, Cottam B (2011) How doctors can close the gap: Tackling the social determinants of health. Clin Med (Lod) 11: 57-60.
6. Kibirige D (2014) Endocrine dysfunction among adult patients with tuberculosis: An African experience. Indian J Endocri- nol Metab 18: 288-294.
7. Hong JY, Kim SY, Chung KS (2014) Association between vitamin D deficiency and tuberculosis in a Korean population. Int J Tuberc Lung Dis 18: 73-78.
8. Muller L, Gorter K, Hak E (2005) Increased risk of common infections in patients with type 1 and type 2 diabetes mellitus. Clin Infect Dis 2005: 41: 281-288.