Prevalence and incidence of type 1 diabetes in Asia: a systematic review and meta-analysis

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Abstract

Statement of the Problem: Diabetes is a group of diseases that characterized by high glucose, which is due to a deficiency in the production or activity of insulin or both, which is caused by different etiologies, causing disorders in protein and lipid metabolism. The aim of this study was to systematic reviewed the prevalence and incidence of type 1 diabetes in Asia. **Methodology & Theoretical Orientation:** A systematic search of resources was conducted to investigate the prevalence and incidence of type 1 diabetes in the Asia. The databases of Medline via (PubMed, Ovid), ProQuest, Scopus, Web of Science were searched. The articles obtained were subjected to several steps in terms of title, abstract, and all screening text and final studies that met the inclusion criteria. **Findings**: Prevalence and incidence of type 1 diabetes were extracted from meta-analysis studies. In type 1 diabetes incidence, the heterogeneity between studies in the meta-analysis was significant (Q=50.51; df=16; P-value<0.001; I^2=68.33), but in the prevalence of diabetes 1, the heterogeneity was not significant (Q=5220; df=6; P-value<0.001; I^2=99.88). The incidence of type 1 diabetes in Asia was 15 per 100,000 population, which was statistically significant (Incidence=0.015, 95% CI=0.010 to 0.021, p<0.001), and the prevalence of type 1 diabetes was 6.9 per 10,000 people, which was statistically significant (Prevalence=0.069, 95% CI=0.020 to 0.214, p<0.001). Figure 1 shows the forest plot of prevalence of type 1 diabetes in Asia. **Conclusion & Significance:** The results showed that the incidence of type 1 diabetes in Asia continental was 14 per 100,000, and the prevalence was, 9.5 per 10,000. According to the results, the incidence and prevalence of type 1 diabetes is increasing and considering that, insulin will be difficult to access, and then will cause problems in poor and developing countries in the future certainly, so warnings about this can help international organizations and countries to adopt effective solutions.

Recent Publications (minimum 5)

1. Nair S, Kumari A, Subramonianpillai J, Shabna D, Kumar S, Balakrishnan S, Naik B, Kumar A, Isaakidis P, Satyanarayana S. High prevalence of undiagnosed diabetes among tuberculosis patients in peripheral health facilities in Kerala. Public Health Action. 2013; 3(1):38–42.

2. Nagar V, Gour D, Arutagi V, Dave L, Bhatia P, Joshi A, Pal D. A study to assess the blood glucose level among diagnosed cases of tuberculosis

registered at a tuberculosis unit of Bhopal city, Madhya Pradesh, India. Int J Med Sci Public Health. 2015; 4(2):245–9.

3. Mi F, Jiang G, Du J, Li L, Yue W, Harries AD, Hinderaker SG, Lin Y. Is resistance to anti-tuberculosis drugs associated with type 2 diabetes mellitus? A register review in Beijing, China. Glob Health Action. 2014; 7(1):24022.

4. Duangrithi D, Thanachartwet V, Desakorn V, Jitruckthai P, Phojanamongkolkij K, Rienthong S, Chuchottaworn C, Pitisuttithum P. Impact of diabetes mellitus on clinical parameters and treatment outcomes of newly diagnosed pulmonary tuberculosis patients in Thailand. Int J Clin Pract. 2013; 67(11):1199–209.

5. Siddiqui AM. Clinical manifestations and outcome of tuberculosis in diabetic patients admitted to King Abdulaziz University hospital in Jeddah, Saudi Arabia. J Taibah Univ Med Sci. 2009; 4(2):148–55.

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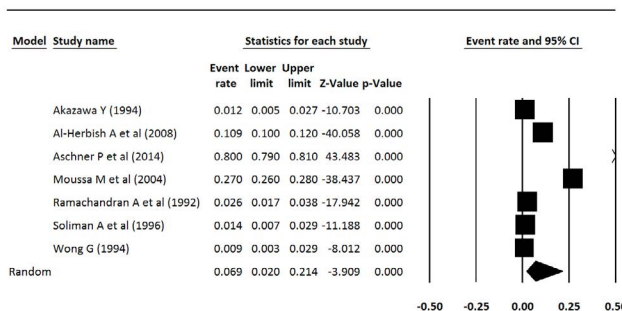
Model	Study name	Statistics for each study					Event rate and 95% CI
		Event rate	Lower limit	Upper limit	Z-Value	p-Value	
	Akazawa Y (1994)	0.012	0.005	0.027	-10.703	0.000	
	Al-Herbish A et al (2008)	0.109	0.100	0.120	-40.058	0.000	
	Aschner P et al (2014)	0.800	0.790	0.810	43.483	0.000	
	Moussa M et al (2004)	0.270	0.260	0.280	-38.437	0.000	
	Ramachandran A et al (1992)	0.026	0.017	0.038	-17.942	0.000	
	Soliman A et al (1996)	0.014	0.007	0.029	-11.188	0.000	
	Wong G (1994)	0.009	0.003	0.029	-8.012	0.000	
Random		0.069	0.020	0.214	-3.909	0.000	

-0.50   -0.25   0.00   0.25   0.50

Figure 1. Prevalence of type 1 diabetes in Asia