Spatial Analysis of Bacterial Meningitis in Iran Using Geographical Information System

Nahid Jesri, Fatemeh Rezaei, Abedin Saghafipour , Habib Asghari, Mehdi Noroozei

Abstract:

Background and purpose: Meningitis is an infectious disease which could lead to mortality in case of outbreak in society, especially in dormitories, schools and resting houses. The aim of this study was to assess the geographical distribution of meningitis in Iran by Geographic Information System.

Materials and methods: In a cross-sectional study all cases of bacterial meningitis in 30 provinces in Iran during 2013 were investigated using existing data. Initially, the national data from meningitis was collected from the disease management offices. The incidence of meningitis in each province was calculated by epidemiologic forms. Then, these data were arranged in a geo-referenced database at provincial level in the Arc-GIS software.

Results: In 2013, 8411cases with bacterial meningitis were reported in Iran. In 250 cases (3%) meningitis was confirmed, in 1823 (22%) the disease was detected as probable and 6338 cases (75%) were suspected to have meningitis. The patients were 40.7% female. Most of the infected individuals were reported from Qazvin, Mazandaran and Kurdestan provinces.

Conclusion: Based on maps, it seems that Qazvin, Mazandaran and Kurdestan provinces have either increased risk of meningitis or have a dynamic care system in which reports to the Centers for Disease Control and vaccine-preventable diseases management offices are fully made.

Keywords: Meningitis, Epidemiology, Spatial analysis, GIS