Spatial Cluster Analysis of Human Cases of Crimean Congo Hemorrhagic Fever Reported in Pakistan

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Abstract : Background : Crimean Congo hemorrhagic fever (CCHF) is a tick born viral zoonotic disease that has been notified from almost all regions of Pakistan. The aim of this study was to investigate spatial distribution of CCHF cases reported to National Institue of Health , Islamabad during year 2013. Methods : Spatial statistics tools were applied to detect extent spatial auto-correlation and clusters of the disease based on adjusted cumulative incidence per million population for each district. Results : The data analyses revealed a large multi-district cluster of high values in the uplands of Balochistan province near Afghanistan border. Conclusion : The cluster included following districts: Pishin; Qilla Abdullah; Qilla Saifullah; Quetta, Sibi; Zhob; and Ziarat. These districts may be given priority in CCHF surveillance, control programs, and further epidemiological research . The location of the cluster close to border of Afghanistan and Iran highlight importance of the findings for organizations dealing with disease at national, regional and global levels.

Keywords : Crimean Congo hemorrhagic fever, Pakistan, spatial autocorrelation, clusters , adjusted cumulative incidence
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