

Risk Factors Associated with Outbreak of Cerebrospinal Meningitis in Kano State- Nigeria, March-May 2017

Authors : Visa I. Tyakaray, M. Abdulaziz, O. Badmus, N. Karaye, M. Dalhat, A. Shehu, I. Bello, T. Hussaini, S. Akar, G. Effah, P. Nguku

Abstract : Introduction: Nigeria has recorded outbreaks of meningitis in the past, being in the meningitis belt. A multi-state outbreak of Cerebrospinal Meningitis (CSM) from *Neisseria meningitidis* occurred in 2017 involving 24 states, and Kano State reported its first two confirmed CSM cases on 22nd March, 2017. We conducted the outbreak investigation to characterize the outbreak, determine its associated risk factors and institute appropriate control measures. Method: We conducted an unmatched Case-control study with ratio 1:2. A case was defined as any person with sudden onset of fever ($>38.5^{\circ}\text{C}$ rectal or 38.0°C axillary) and one of the following: neck stiffness, altered consciousness or bulging fontanelle in toddlers while a control was defined as any person who resides around the case such as family members, caregivers, neighbors, and healthcare personnel. We reviewed and validated line list and conducted active case search in health facilities and neighboring communities. Descriptive, bivariate, stratified and multivariate analysis were performed. Laboratory confirmation was by Latex agglutination and/or Culture. Results: We recruited 48 cases with median age of 11 years (1 month - 65 years), attack rate was 2.4/100,000 population with case fatality rate of 8%; 34 of 44 local government areas were affected. On stratification, age was found to be a confounder. Independent factors associated with the outbreak were age (Adjusted Odds Ratio, AOR = 6.58; 95% Confidence Interval (CI) = 2.85-15.180, history of Vaccination (AOR=0.37; 95% CI=0.13-0.99) and history of travel (AOR=10.16; (1.99-51.85). Laboratory results showed 22 positive cases for *Neisseria meningitidis* types C and A/Y. Conclusion: Major risk factors associated with this outbreak were age (>14 years), not being vaccinated and history of travel. We sensitized communities and strengthened case management. We recommended immediate reactive vaccination and enhanced surveillance in bordering communities.

Keywords : cerebrospinal, factors, Kano-Nigeria, meningitis, risk

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