Two years detection of respiratory syncytial virus subtypes A and B from children admitted to a General Hospital in Sri Lanka

M. Divarathna 1,*, J.A.A.S. Jayaweera 2, R.A.M. Rafeek 3, A. Morel 4, F. Noordeen 5

1 University of Peradeniya, Department of Microbiology, Kandy, Sri Lanka
2 Faculty of Medicine and Allied Sciences Rajarata University Saliyapura Sri Lanka, Microbiology, Anuradhapura, Sri Lanka
3 University of Peradeniya, Department of Microbiology, Kandy, Sri Lanka
4 Teaching Hospital Gampola Sri Lanka, Pediatrics, Kandy, Sri Lanka
5 University of Peradeniya, Microbiology, Faculty of Medicine, Peradeniya, OTHER/NONE, Sri Lanka

Background: Respiratory syncytial virus (RSV) associated acute respiratory tract infection (ARTI) is one of the most important causes of childhood morbidity and mortality. RSV consists of two major antigenic types – A and B. This study aims to identify the types of RSV circulating in the Kegalla district, Sri Lanka.

Methods and materials: We collected demographic and clinical data and nasopharyngeal aspirate (NPA) samples from 502 children with suspected ARTI admitted to the General Hospital, Kegalle, Sri Lanka from March 2016 to July 2018. The study sampled children less than 5 years of age with ≤4 days history of ARTI. Climatic data of the Kegalle region within the study period was obtained from the World Weather Online API (application programming interface).

IFA (D3 UltraTM, USA) was performed on NPA to detect seven viruses including RSV. Viral RNA was execrated (Qiagen, Germany) from RSV positive NPA samples and performed a real-time RT-PCR (Altona-Diagnostics EN) for typing.

Results: Of the 164 IFA positive children for RSV, 46 were infected with RSV A, 101 were infected with RSV B and 17 were co-infected with RSV A and B (RSV AB). RSV B was observed throughout the study period with peak incidences from March to June 2017 and April to June 2018. RSV A was detected from June to November 2016, March to November 2017 and May to July 2018. RSV AB was detected during time periods of RSV A and B co-circulation. Overall a male predominance was evident as 73.9% RSV A, 57.4% RSV B and 64.7% RSV AB positive patients were males. First-year of life appeared to associate with RSV infection as 76% RSV A, 75.2% RSV B and 64.7% RSV AB positive patients were ≤1 year age. RSV activity positively correlated with rainfall, temperature, humidity and wind speed. Mild to moderate bronchiolitis, bronchopneumonia and unclassified lower respiratory tract infection were frequently diagnosed in RSV positive patients and RSV type did not appear to associate with disease severity.

Conclusion: RSV type B is the most predominant RSV strain to circulate among the children with ARTI in the Kegalla district, Sri Lanka.

Predicting the mortality of melioidosis in the heart of Borneo

V. Toh 1,*, S.P. Tee 2, D. Ang 3, C.Y. Chang 4

1 Kapit Hospital, Internal Medicine, Kapit, Sarawak, Malaysia
2 Kapit Hospital, Internal Medicine, Kapit, Malaysia
3 Selayang Hospital, Internal Medicine, Selangor, Malaysia
4 Sarawak General Hospital, Medical, Kuching, Malaysia

Background: Melioidosis, caused by Burkholderia pseudomallei, is prevalent in rural areas of Malaysia. This soil-dwelling pathogen is inherently resistant to many first-line antibiotics and carries a high mortality rate. Hence, it poses a significant burden of disease in terms of productivity losses among farmers and blue-collar workers in resource-poor environments. There are limited reports on the factors associated with mortality from melioidosis in Borneo.

Methods and materials: This study delineates the epidemiological, clinical and microbiological characteristics of melioidosis, and the predictors of mortality. Seventy-three adults, with culture-confirmed melioidosis at Kapit Hospital, Sarawak, Malaysia, over a 3-year period were retrospectively identified.

Results: Among 73 patients, diabetes mellitus (28.8%; n = 21) and hypertension (27.4%; n = 20) were reported as the primary risk factors. The clinical spectrum of melioidosis may vary from localised soft tissue (21.9%; n = 16) and joint abscesses (6.9%; n = 5), to a fulminant end of the spectrum, in the form of bacteraemia (64.4%; n = 47), pneumonia (61.6%; n = 45) and internal organ abscesses (49.3%; n = 36). The mortality rate was 12.3% (n = 9).

The mean time from presentation to initiation of anti-melioidosis treatment was 2.6 ± 2.3 days. Positive cultures largely came from blood (58.9%, n = 43) and sputum (28.3%; n = 21). All isolates were sensitive to Cefazidime and 92.7% were sensitive to Gentamicin, which is a unique occurrence in Sarawak. Using univariate analyses, we identified septic shock (p = 0.001), intensive care unit admission (p = 0.001), mechanical ventilation (p = 0.001), serum urea (p = 0.001), serum creatinine (p < 0.001), serum aspartate transaminase (p = 0.037), serum bicarbonate (p = 0.001) and serum albumin (p = 0.025), to be associated with increased risk of mortality. Multivariate logistic regression analyses identified serum bicarbonate (p = 0.004, OR 0.64, 95% CI 0.48–0.87) and serum albumin (p = 0.031, OR 0.73, 95% CI 0.54–0.97), to be the independent predictors of mortality from melioidosis.

Conclusion: The identification of these two routine clinical parameters, namely serum bicarbonate and serum albumin, have important prognostic implications in septicaemic melioidosis, which could potentially allow prompt recognition of critically ill patients and timely initiation of anti-melioidosis treatment.

https://doi.org/10.1016/j.ijid.2020.09.585

https://doi.org/10.1016/j.ijid.2020.09.584