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The emergence of group B:ST-1572 meningococci in Aotearoa New Zealand

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Background

Aotearoa New Zealand (NZ) has been conducting genomic surveillance for *Neisseria meningitidis* since 2017 and contributes to global surveillance by submitting genomic and limited surveillance data to PubMLST. Group B meningococci are the main cause of invasive meningococcal disease in NZ. Since 2015, the number and proportion of cases caused by B:P1.7-12,14:cc1572 relative to other group B cases has increased with the first case detected in 2009.

Aim/Methods

Epidemiological data were derived from the national notifiable disease surveillance database. Whole genome sequencing was used to characterise the B:P1.7-12,14:cc1572 isolates. International comparison was performed on available assemblies from the PubMLST *Neisseria* database.

Results

While other group B strains in NZ affect both young children and adolescents, the B:P1.7-12,14:cc1572 strain is disproportionately affecting Māori infants, and children under the age of five. It has similar clinical characteristics and case fatality rate to other strains. The isolates tested so far were penicillin non-susceptible (0.25 to 0.5 mg/L), but susceptible to ceftriaxone, ciprofloxacin, and rifampicin. To understand the emergence of this strain in NZ, we compared NZ genomes with similar genomes on PubMLST. We found there was likely a single introduction of the strain to NZ. Time to most recent common ancestor and clonal expansion analysis revealed two clonal-expansion events, one occurring between 2004 to 2008 and the other occurring around 2013. NZ introduced the 4CMenB (Bexsero) vaccine into the immunisation schedule on first of March 2023. Genomically, there is insufficient data to predict whether this strain is cross-reactive to 4CMenB using the Meningococcal Deduced Vaccine Antigen Reactivity Index tool (PubMLST). The Meningococcal Reference Unit (UKHSA, Manchester, England) is currently conducting Meningococcal Antigen Typing System (MATS) testing on this strain on our behalf. The NHBA peptide type (20) of this strain is predicted to be covered by the genomic MATS tool.

Conclusions

B:P1.7-12,14:cc1572 may be becoming the predominant group B strain in NZ. It is disproportionately affecting Māori infants, and children under five years. Bexsero is currently the only 'group B' vaccine available in NZ. Therefore, it is important for us to evaluate 4CMenB reactivity and to continue surveillance of this strain.