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Title: ACUTE RHEUMATIC FEVER PRESENTATIONS IN SOUTH AUCKLAND NEW ZEALAND 2020 - 2022 AND IMPACT OF THE GLOBAL COVID-19 PANDEMIC

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Background & Aims: There is high incidence of acute rheumatic fever (ARF) in New Zealand, with inequitable impact on indigenous Maori and Pacific peoples. South Auckland is an urban population of approximately 500, 00 people with the highest rates of disease nationally. Around 65 children are diagnosed with ARF annually and approximately 700 are on benzathine penicillin secondary prophylaxis. The global covid-19 pandemic has had wide-ranging impacts on epidemiology of childhood infectious diseases, healthcare access and education. Between 2020 - 2021 there was substantial disruption to the South Auckland school-based primary prevention programme, however secondary prophylaxis delivery was prioritised as a critically important service.

Methods: We sought to describe the epidemiologic, clinical and cardiac features of among persons <20 years hospitalised with ARF at Middlemore Hospital, Counties Manukau, 2020 - 2022. Retrospective observational study. Ethical approval obtained. Persons aged ≤20years with ARF or a new diagnosis of chronic rheumatic heart disease (RHD) between 1st Jan 2020 - 31st Dec 2022 were eligible. Clinical, laboratory and echocardiographic data were collected. Data was entered into a Redcap database and analysed using SPSS. American Heart Association and New Zealand diagnostic criteria for ARF were applied by experienced ARF clinicians.

Results: There were 85 cases including 77 with ARF and 8 with newly diagnosed RHD. Among the 77 ARF cases, there were 52 males (67%). Median age at diagnosis was 11.8 years (range 5.3 - 18.7 years). 56% were of Pacific ethnicity and 46% were Māori. AHA Jones: 71 Definite cases, 6 probable cases. New Zealand criteria: 69 Definite cases, 7 Probable cases, 2 Possible cases. The majority, 49/77 (64%) were referred by a primary care doctor (GP) and 26 presented via the hospital Emergency Department. Joint manifestations were the most common presenting feature, occurring in 68/77 (88%) of the cohort, 41 had arthritis and 27 had polyarthralgia. Carditis was present in 57/77 (75%). Pathologic-grade mitral regurgitation was present in 46/77 and 40/77 had pathologic-grade aortic regurgitation. There were 17 with severe carditis. Median ESR was 75mm/hr (range 30 ->140mm/hr). Median CRP was also 75mg/L (range 7 - 411mg/L). 48/77 (72%) had prolonged PR interval. Strep A was isolated by PCR or culture in 44/77 (66%).

During the study period, 8 underwent surgery and 7 of these patients were male. The median age at time of first operation was 8 years (range 6.6 - 17.7 years). The majority (5) underwent multi-valve surgery (aortic homograft plus mitral repair +/- tricuspid annuloplasty). Two had mechanical valve replacements and only 1 child had isolated mitral valve repair. There were no reported deaths. Chorea was rare (4/77)

Conclusions: ARF and RHD are continuing problems in South Auckland. Case numbers during 2020-2022 appeared lower than pre-pandemic, however nearly a quarter of cases had severe carditis and most of the children undergoing surgery had multi-valve disease.