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LETTERS TO THE EDITOR

Dear Editor,

COVID-19 AND PRIMARY IMMUNODEFICIENCY: ONE-YEAR EXPERIENCE

Primary immunodeficiency (PID) has been listed among conditions that may predispose to severe COVID-19 by the Centers for Disease Control and Prevention (CDC). The number of reported paediatric studies in this area is scarce.[1,2] More than a year has passed since COVID-19 was reported for the first time in Oman. Here, we report a year of experience of COVID-19 among children with PID at Sultan Qaboos University Hospital (SQUH), Muscat, Oman. SQUH is one of two main centres in Oman that manage children with PID. To date, we have followed 140 patients with PID in our centre with a median follow-up of 9.2 (interquartile range 4.0–14.4) years. The types of PID we manage include 34.3% phagocytic dysfunction, 21.4% antibody disorders, 15% combined immunodeficiency, 17.1% other well-defined PID syndromes, 4.3% immune dysregulation syndromes, 5% complement deficiencies and 2.9% unclassified immunodeficiency. Since the start of the pandemic, no child with PID from our centre has been admitted to hospital with a condition related to COVID-19. Several patients had mild COVID-19 and did not require hospitalisation. One patient with X-linked agammaglobulinaemia on regular intravenous immunoglobulin continued to shed the virus for 3 months. An international study that assessed severity of COVID-19 in this population reported that >30% of those who got COVID-19 had a mild disease.[3] Mortality rate was 9% which was similar to the global data from general population and it was mainly among patients with other co-morbidities like heart and kidney diseases.[3] It seems that the severity of primary immunodeficiency correlates negatively with the severity of COVID-19.[1] That this population has fewer COVID-19 infections may be explained by having stricter infection control measures compared to the general population.[1–3] Multiple studies suggest that patients with antibody defects tend to have mild COVID-19 infection,[4] which may suggest that B-cell immunity is not very important for fighting COVID-19 or may highlight that the hyper-inflammatory state in patients with COVID-19 is more likely to be related to B-cell response.[1,3] The lack of B-cell response seems to be protective against severe COVID-19. Delavari *et al.* reported a 10-fold higher mortality among patients with PID from the Iranian national registry of PID compared to the general population especially among patients with combined immunodeficiency and immune dysregulation, although whether SARS-CoV-2 infection contributed directly or indirectly to any of those deaths was unclear.[2] Our experience suggests that children with PID are more likely to get either asymptomatic or mild COVID-19 which may be explained by the fact that most of our patients with PID have either antibody or phagocytic defects and many of our patients with combined PID have been transplanted already. More data are required to draw a conclusion on whether PID is a predisposing or a protective factor against COVID-19 in this population and, until then, strict infection control measures are recommended.

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References

1 Babaha F, Rezaei N. Primary immunodeficiency diseases in COVID-19 pandemic: A predisposing or protective factor? *Am. J. Med. Sci.* 2020; **360**(6): 740–41. https://doi.org/10.1016/j.amjms.2020.07.027.
2 Delavari S, Abolhassani H, Abolnezhadian F *et al*. Impact of SARS-CoV-2 pandemic on patients with primary immunodeficiency. *J. Clin. Immunol.* 2020; **41**: 345–55.
3 Meyts I, Bucciol G, Quinti I *et al*. Coronavirus disease 2019 in patients with inborn errors of immunity: An international study. *J. Allergy Clin. Immunol.* 2020; **147**: 520–31.
4 Britton P. Important lessons from agammaglobulinaemic patient with COVID-19. *J. Paediatr. Child Health* 2021 forthcoming.

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Dear Editor,

ACUTE EPIDIDYMITIS ASSOCIATED WITH MULTISYSTEM INFLAMMATORY SYNDROME IN CHILDREN

A previously healthy 8-year-old boy presented with 4 days of fever and 2 days of scrotal pain and swelling. Past medical history was unremarkable with no history of recent trauma, symptomatic respiratory infection, urinary symptoms and/or urethral discharge. The child's grandmother had a documented COVID-19 infection and contacted the child 6 weeks before this presentation. Physical examination revealed scrotal swelling and erythema with diffuse tenderness (Fig. 1a), and a maculopapular rash on the patient's abdomen. Laboratory tests showed lymphocytopenia (520/mm^3), thrombocytopenia (98 000/mm^3) and elevated inflammatory markers (C-reactive protein 170 mg/L, erythrocyte sedimentation rate 39 mm/h, procalcitonin 10 ng/mL, ferritin 634 ng/mL, fibrinogen 494 mg/dL and interleukin-6150 pg/mL). Urinalysis was normal, and urine culture on admission was negative. Ultrasonography confirmed the inflammation of the right epididymis (Fig. 1b). Serological studies for Epstein–Barr virus, cytomegalovirus, *Mycoplasma pneumoniae* and serum agglutination test for *Brucella* were negative. The patient's fever, scrotal swelling and pain persisted despite antipyretic and intravenous (IV) antibiotic (ceftriaxone) treatments. On hospital day 3 (7 days after symptom onset), he developed bilateral non-suppurative conjunctival injection, diffuse abdominal tenderness and a confluent, erythematous rash over the trunk and extremities. Abdominal ultrasonography revealed diffuse mesenteric