Objectives The objectives of this study were to 1. Determine occurrence of iron and vitamin D deficiency in the sample population, 2. Identify predictors of the presence of these deficiencies if any and 3. Elucidate factors influencing screening for these deficiencies in children with ASD.

Methods This was a retrospective cross-sectional review of case records of all patients with ASD who were seen at a tertiary developmental paediatric centre in Singapore from January 2018 to June 2018. Inclusion criteria was 1. Child age 0 to 7 years and 2. Diagnosis of ASD following clinical evaluation by a developmental paediatrician or formal psychological evaluation with the Autism Diagnostic Observation Schedule. Exclusion criteria was 1. Chronic medical conditions and 2. Genetic syndromes. Information on demographic variables, ASD-related variables and other medical conditions was abstracted using a structured data collection form. Presence of iron deficiency (serum ferritin < 12 µg/L or transferrin saturations < 10%), vitamin D deficiency (25-hydroxyvitamin D [25(OH)D] < 10 µg/L) and vitamin D insufficiency (25(OH)D between 10.1–29.9 µg/L) was determined from review of laboratory investigations. Descriptive statistics were used to assess for prevalence of iron and vitamin D deficiencies. Logistic regression was used to identify predictors of iron and vitamin D deficiencies and chi square tests were used to compare children who were and were not offered screening for these deficiencies.

Results The sample consisted of 480 children (81% males, 19% females) with a mean age of 4.5 years (SD 1.3). Of this, only 20.2% (N=97) of children were screened for iron deficiency and 18.3% (N=88) were screened for vitamin D deficiency using blood tests. The prevalence of iron deficiency was 19% (N=18). Younger children were more likely to have iron deficiency (B=1.06, p=0.02). The prevalence of vitamin D insufficiency was 38% (N=33) and that of vitamin D deficiency was 1.1% (N=1). Older children were more likely to have vitamin D deficiency or insufficiency (B=1.07, p=0.01). Only 20.8% (N=100) of children from the entire sample were offered screening blood tests; children with greater severity of disease ($\chi^2 = 9.80$, p=0.002) and those with a history of selective feeding ($\chi^2 = 8.27$, p=0.004) were more likely to be offered screening tests.

Conclusions The prevalence of both iron deficiency and vitamin D deficiency/insufficiency was high in this sample compared to the general population. Of note, only a small proportion of children were offered screening and eventually screened for these deficiencies. Apart from child age, there were no significant child or disease characteristics that predicted these deficiencies. Routine screening of all children with ASD for iron and vitamin D deficiency is recommended.

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FRACTURE BURDEN IN PAEDIATRIC END STAGE KIDNEY DISEASE

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Background Paediatric patients with chronic kidney disease are known to have an increased risk of fracture. However, data pertaining to children with end stage kidney disease (ESKD) receiving renal replacement therapy (RRT) is limited.

Objectives The aim of this study is to determine the incidence of fracture and associated factors in this specific group of patients.

Methods We conducted a retrospective review on all paediatric patients with ESKD at the tertiary Paediatric Nephrology Centre in Hong Kong. Children who presented before 18 years with active follow-ups for 12 or more months by November 2020 were included.

Results RRT was initiated in 69 children (55% boys) at a mean age of 9.2 ± 5.9 years. At the time of evaluation, 21 (30.4%), 10 (14.5%) and 38 (55.1%) patients received peritoneal dialysis (PD), haemodialysis (HD) and kidney transplant respectively. 3 patients (4.3%) had prior kidney graft loss and resumed on dialysis. One patient (1.5%) reported a fracture prior to RRT.

Over a median of 5.2 years (IQR 3.0–8.3) follow-up, 10 fracture episodes were observed in 7 patients (10.1%) at a mean duration of 7.8 ± 8 years since RRT initiation, corresponding to a cumulative fracture incidence of 227.8 per 10000 patient year (95% CI, 86.6–369.0). This rate was 5-folds higher than published data from our local general paediatric population (45 per 10,000 person-years; 95% CI, 43.9–46.1; p=0.01). Of note, all patients experienced single fracture episode except one child who developed 4 fracture episodes.

Children who sustained fractures were significantly younger at the time of RRT initiation (3.5 vs 10.4 years; p=0.02) and had a longer time on dialysis (12 vs 2.7 years; p<0.001). Other factors associated with fractures included metabolic bone disease (28.6% versus 1.6%; p=0.03), difficulty in walking (28.6% versus 3.2%; p=0.05), radiological evidence of renal osteodystrophy (85.7% vs 25.8%; p=0.003), parathyroid hyperplasia/adenoma (100% vs 31.8%; p=0.01) and a higher parathyroid hormone level (pmol/L) (62.7 vs 30.3; p=0.02). Calcium, phosphate and ALP levels, as well as the proportion of patients with vitamin D deficiency were similar between the two groups. While the practice of native and active vitamin D and phosphate binders were not different, more patients with fracture received cinacalcet (57.1% versus 12.9%; p=0.02), which may suggest more severe hyperparathyroidism.

Conclusions Children with ESKD receiving RRT are at a higher risk of fracture. Longer duration of dialysis and a higher average parathyroid hormone level were potential modifiable factors associated with fractures.

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INTEGRATED LEARNING THROUGH SIMULATIONS WITH THE AVIATION INDUSTRY

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Background The aviation industry has been the leader in the field of simulation having pioneered and designed much of their current simulation training including crew resource management, situational awareness and debriefing tools. Increasingly, there is an interest in incorporating key aspects of such simulation training into the medical teaching curriculum as many of the skills, particularly with regards to human factors are transferrable skills to medicine. With this in mind and the given the current COVID pandemic which has rendered much of the aviation industry to a halt, the simulation faculty at