

Poster Presentation

Is the Hong Kong Food Allergy Population on Restrictive Diets an 'At-Risk' Group for Iodine Deficiency and in Need of Supplementation?

SR HATTANGDI-HARIDAS,¹ MHK HO²

¹Maya Health Institute; ²Honorary Clinical Associate Professor, Department of Paediatrics & Adolescent Medicine, School of Clinical Medicine, The University of Hong Kong, Hong Kong SAR, China

Purpose: Insufficient iodine consumption has been identified in the Hong Kong Population Survey PHS 2020-22. The DH and Working Group on Prevention of Iodine Deficiency Disorders have advised higher consumption of iodine-rich foods including seafood, marine fish, eggs, milk, dairy products to the general population and iodine supplementation (150 µg/day) for pregnant/lactating women. This advice may not be feasible for persons with food allergies on long-term restrictive diets. In Adverse food reactions (AFR), avoidance of the relevant foods remains the cornerstone of management. Cow's milk, fish, egg and chicken are common allergens. Would this warrant adding this population subset to the vulnerable group for testing iodine status? Does present evidence support routine evaluation of iodine status at allergy clinics or empirical iodine supplementation for this subset?

Methodology: Databases PUBMED, EMBASE, Cochrane Library, EBSCO were explored including full-length English publications including WHO, Hong Kong Department of Health upto August 2023. Individual researchers were emailed. The available data was summarised. Gaps in available data were acknowledged.

Conclusion: Data shows an increasing food allergy trend in the Hong Kong Population commonly shellfish, hen's egg (14.5%), cow's milk and dairy products (10.8%). Perils of iodine supplementation in replete cohorts discourages empirical supplementation in uninformed status. Urgency exists to verify the iodine status of the Hong Kong allergy subgroup especially children and reproductive-age women on food restrictive diets. A pilot study at allergy clinics, comparing iodine status and thyroid health, with healthy peers is critical to define the vulnerability of this sub-group to iodine deficiency.

An Upgraded Neonatal Resuscitation Workshop for In-Hospital Training: A Regional Hospital's Experience

KL SIU,¹ NM CHAN,¹ PY LEUNG,¹ YM TSOI,¹ CK KUNG,¹ WK LAM,¹ SY CHAN,¹ SY CHEUNG,¹ TK LEUNG,¹ YT YUNG,¹ KY WONG²

¹Department of Paediatrics; ²Multi-disciplinary Simulation and Skills Centre, Queen Elizabeth Hospital, Hospital Authority, Hong Kong SAR, China

Introduction: A good and effective neonatal resuscitation training (NRT) program is vital for retaining skills and achieving good outcome. Currently, the demand for NRT is huge, but the supply is very limited. The American Academy of Pediatrics Neonatal Resuscitation Program (AAP-NRP) also advocates periodic low volume and high frequency revision to refresh knowledge and skills.

Purpose: A quarterly held upgraded simulation based Neonatal Resuscitation Workshop (UpNRW) was developed in October 2022 after COVID-19 pandemic in Queen Elizabeth Hospital to meet the demand and AAP-NRP advocacy. This UpNRW is conducted following adult learning theory and it focuses on real time supervised skill practice, teamwork and crew resource management training.

Methods: The UpNRW was developed in October 2022. It consists of pre-course reading and videos, a 3-hour skills and drills teaching session on major resuscitation skills required in neonatal resuscitation, teamwork and crew resource management. The instructors are advanced practicing nurses and neonatal physicians; some are AAP-NRP accredited hospital instructors.

Findings: Total 94 trainees joined five UpNRW. Trainees reported the UpNRW was useful with high level of satisfaction and it also enhanced their practice (Score: 4.67/5; 4.61/5; 4.67/5). They strongly recommended the UpNRW to their colleagues (Score: 8.88/10).

Conclusions: This innovative UpNRW provides a simple, time saving and structured model for NRT. Motivated and prepared trainees welcomed this mode of NRT and found it useful. Thus, this UpNRW is worth promoting and should be made available to more Paediatric departments. More studies should be performed to testify its clinical significance.

The Benefits of Nintendo RingFit-Based Exercise Training on the Physical and Self-Perceived Functioning of Paediatric Patients in Paediatric Intensive Care Unit

J LAM,¹ KY LEUNG,² MY CHAN,¹ WW HUI,¹ PL WONG,¹ WL TUNG,¹ WW CHAN¹

¹Allied Health Department (Physiotherapy); ²Paediatric Intensive Care Unit, Department of Paediatrics and Adolescent Medicine, Hong Kong Children's Hospital, Hong Kong SAR, China

Background: Children who survive critical illness in the Paediatric Intensive Care Unit (PICU) may have major physical, cognitive, and psycho-behavioural morbidities, which lead to functional impairments, limited movement and a lower quality of life. Symptoms such as fatigue, pain and anxiety might further reduce a patient's motivation and capacity to participate in PICU rehabilitation. Nintendo RingFit-based exercise training have recently been evaluated their potential capability to enhance physical activity and balance. However, there are no studies to investigate the potential benefits of it for paediatric patients who managed in PICU.

Methods: Participants were recruited from the PICU of the Hong Kong Children's Hospital, they were randomised (1:1 block) into either into a conventional group (C) or intervention group (I). In the conventional group, participants received conventional physiotherapy training including chest physiotherapy, mobilisation and strengthening exercises. While in the intervention group, participants received conventional physiotherapy plus an additional 20-minute Nintendo RingFit-based exercise training in a seated position on Chair. Outcome measures includes manual muscle testing, Paediatric Balance Scale (PBS), Peds QLTM Present Functioning Scales (PedsQL™ VAS: measures anxiety, sadness, anger, worry, fatigue, and pain), as well as satisfaction survey. They were taken before treatment, immediately after treatment, and upon PICU discharge.

Result: The study was completed by 28 participants aged 4 to 17 years (mean 12±3.59 years). There was significant improvement in all outcome measures in both groups upon PICU discharge ($p < 0.05$). Specifically, the intervention group showed significantly better muscle strength (upper limbs: I:4.62±0.42 vs C:4.02±0.69; $p = 0.04$; lower limbs: I:4.82±0.32 vs C:4.01±0.34; $p = 0.04$), PBS score (I:39.3±5.96 vs C:30.2±4.86; $p = 0.04$), total symptom score (I:2.43±3.12 vs C:4.15±3.86; $p = 0.04$) and emotional distress summary score (I:1.23±2.96 vs C:3.2±1.86; $p = 0.04$) at average 7.3 sessions as compared to the control group. In addition, there was significant

reduction in PedsQLTM VAS - anxiety (from 6.15±1.2 to 4.75±0.9, $p = 0.04$) and worry scores (from 6.16±0.9 to 3.64±1.1, $p = 0.03$) immediately following one session of Nintendo RingFit-based exercise training. For the satisfaction survey, around 92.8% of the participants agreed that the Nintendo RingFit-based exercise training is "interesting", "can motivate them to sit out of bed earlier" and "can encourage to exercise more in hospital environment"

Conclusion: The Nintendo RingFit-based exercise training provides additional beneficial effects on muscle strength, balance, and self-perceived present functioning (e.g. anxiety, sadness, anger, worry, fatigue, and pain) for patients managed in PICU. Specifically, it provides immediate reduction in anxiety and worries immediately after the intervention. Patients appreciated the implementation of RingFit-based exercise training, which may motivate them to sit out and exercise more in PICU setting.

Optimising Patient Safety of Neutropenic Fever in Paediatric Oncology Patients

ON CHAN, CMA CHAU, TYJ TONG, PY SIU, HT WONG
Hong Kong Children's Hospital, Hong Kong SAR, China

Introduction: Paediatric oncology patients are the high risk group with neutropenic fever. Empirical antibiotic should be administered as soon as possible and preferably within an hour after admission. Prolonged time to antibiotic administration (TTA) was associated with increase in numbers of adverse events. 21% cases were admitted to Leukaemia Lymphoma Haematology (LLH) Unit in HKCH from 1st June 2021 to 31st May 2022, due to neutropenic fever (NF). The average reporting time to ward since fever onset was 2.8 hours, which was far behind from the ideal time. The delay reporting time leads to 10% patients required PICU support. To improve the stated situation, a program was implemented to enhance their knowledge and awareness on neutropenic fever in order to advance the reporting time.

Purposes: To advance the reporting and admission time since onset of neutropenic fever in paediatrics oncology patients

1. To decrease the emergency situations or deterioration on admission
2. To enhance knowledge of neutropenic fever and early recognition of infections in paediatrics oncology patients and families

Method: From 1st January 2023 to 31st August 2023, an electronic booklet with 3 animations about neutropenic fever was introduced to all paediatric oncology cases in 5W ward.

Findings: The average reporting time to ward since fever onset was reduced from 2.8 hours to 1.1 hours. Admission time after reporting was reduced from 1.7 hours to 1.2 hours. The average time from fever onset to admission was reduced from 4.5 hours to 2.3 hours. The percentage of neutropenic fever cases requiring PICU support was decreased from 10% to 8%, while cases requiring fluid resuscitation was remaining unchanged (25%).

Conclusion: The program can optimize patient safety of neutropenic fever in paediatric oncology patients by advancing their reporting time and admission time to ward.

Weathering the Storm: Family Caregivers' Worries for Children with Intellectual Disabilities During the COVID-19 Crisis in Hong Kong

KH YIP,¹ YH MO,² YC YIP,³ WK TSUI,¹ FF FONG,² PM CHU⁴

¹Caritas Institute of Higher Education; ²Hong Kong Shue Yan University;

³Hong Kong Metropolitan University; ⁴Hong Chi Winifred Mary Cheung Morninghope School, Hong Kong SAR, China

Background: The COVID-19 pandemic has created additional challenges for family caregivers of children with intellectual disabilities who require long-term care.

Purpose and Methods: This qualitative study aims to explore an in-depth understanding of the lived experiences and perspectives of caregivers regarding the care they provide and the formal support services they utilise for their children with intellectual disabilities during the COVID-19 pandemic in Hong Kong. Interviews were conducted with 6 purposively selected family caregivers caring for a child with intellectual disability at home. Transcripts were analysed using interpretative phenomenological analysis.

Findings: Findings revealed 4 key themes related to caregiver worries: (1) regression of the child's skills and behaviours due to disruption of special support services, (2) risks of the child contracting COVID-19 due to inability to comply with preventive measures, (3) caregiver stress and burnout exacerbated by social isolation and lack of respite care, and (4) uncertainty over the child's future prospects in education and employment due to prolonged interruption of developmental programs.

Conclusions: Findings provide insights into the pandemic's multifaceted impact on informal caregiving for children with high support needs. Support measures are warranted to mitigate caregiver stresses and ensure continuity of care amidst crisis-driven service disruption.

Quantitative Analysis of Brain Volumes and Cortex Maturation Among the Extremely Preterm Infants with Enlarged Subarachnoid Space

LB WANG, YB ZHUO, DY MING

Department of Paediatrics, University of Hong Kong-Shen Zhen Hospital, Shenzhen 508053, China

Objective: to explore the effect of enlarged subarachnoid space (ESS) on developing brain of extremely preterm infants.

Methods: This is a retrospective study which has enrolled almost 120 extremely preterm infants, those babies were divided into two groups: ESS group and no-ESS group, and the criteria for ESS was defined as the sinus-cortex width (SCW) longer than 3.5 mm on brain MRI at term equivalent age (TEA). After the segmentation of brain tissues and cortex via FSL and Freesurfer, the volumetric indexes (CSF, white matter, grey matter) and 4 key cortex maturation indexes (surface thickness, area, volume, curvature) can be extracted accurately.

Results: ESS group had greater cranial cavity than no-ESS group (403.82±45.2 vs 380.15±39.22 ml), and this difference was mostly derived from the enlarged extra-brain space on ESS group. The difference of volume of cerebral parenchyma was not significant (311.23±22.4 vs 305.26±21.78 ml). In term of cortex maturation, the surface area and mean curvature were found to be having significant difference between two groups while surface thickness and volume were not involved.

Conclusion: ESS did not occupy the space of brain growth but can impair the normal trajectory of cortex development of extremely preterm infants.

Hunger Induction for Feeding Tube Weaning in Paediatric Patients: A Case Series

OY YIU,¹ CY LAI,² PI CHIANG,¹ YY KWOK,² KM YEUNG²

¹Speech Therapy, ²Dietetics, Department of Allied Health, Hong Kong Children's Hospital, Hong Kong SAR, China

Background: Paediatric patients with complex medical conditions often encounter feeding difficulties, necessitating the use of feeding tubes for nutritional support. Weaning these patients off feeding tubes is a pivotal step towards enhancing overall quality of life. Hunger induction, a multidisciplinary treatment approach involving speech therapy and dietetics, has shown promise in facilitating tube weaning.

Methods: A retrospective review was conducted at Hong Kong Children's Hospital. Medical records of paediatric patients receiving speech therapy with hunger induction for tube weaning were analysed. Demographic data, including age, gender, and underlying medical conditions, were collected. The hunger induction process, duration of the program, growth status, nutritional intake and treatment outcomes were documented.

Findings: The case series encompassed six patients with diverse medical backgrounds, including biliary atresia, microcephaly with MYBPC3 pathogenic variant, Pierre Robin sequence, cleft lip and palate, and mandibulofacial dysostosis. The patients' ages ranged from 3 to 26-month-old at the commencement of the program. Hunger induction was implemented for an average duration of 21.5 weeks. Anthropometrics including body weight, height, and oral nutritional intake were monitored by dietitians throughout the process to adjust feeding plan and support growth. Of the patients, four successfully weaned off their feeding tubes and transitioned to full oral feeding. The remaining two patients are currently undergoing hunger induction and have demonstrated encouraging progress, including improved acceptance of oral feeding, increased oral intake, and reduced reliance on the tube.

Conclusions: This case series highlights the potential effectiveness of hunger induction as a method for weaning paediatric patients off feeding tubes. The favourable outcomes observed in patients with diverse medical conditions underscore the applicability of this approach in various clinical settings. Collaborative efforts among professionals and caregiver compliance were crucial in designing and implementing individualized treatment plans. These findings emphasize the importance of further research and exploration of hunger induction as a viable strategy for tube weaning in paediatric patients and support its integration into clinical practice.

Possible Paradigm Shift? Salvage of Two Inoperable Childhood Head and Neck Solid Tumour By Endoscopic Surgery

AKY SIU,¹ JFW LO,¹ CCF LAI,² SMW CHOW²

¹Department of Otorhinolaryngology, Hong Kong Children's Hospital;

²Department of Otorhinolaryngology, Prince of Wales Hospital, Hong Kong SAR, China

Objective: Paediatric solid tumours often present as rapidly enlarging masses, and the majority of them in the head and neck region are inoperable at presentation. We described our approach of two successful cases of sinonasal paediatric solid tumour by timing endoscopic salvage surgery with chemotherapy and radiotherapy to achieve clinical remission.

Methods: Two cases treated in Hong Kong Children's Hospital in year 2022 were reported. The patients' clinical charts, radiology images and operative records were summarised.

Case ZYL is 13 years old girl suffered from right fronto-ethmoidal Ewing's sarcoma. The tumour was extensive that craniofacial resection with right orbital exenteration is the operation of choice if primary surgery would have been attempted. The family opted for primary chemotherapy. Endoscopic fronto-ethmoidectomy was performed after tumour shrinkage allowing eye preservation, and coupled with post-operative radiotherapy to achieve margin control. There was minimal morbidities. Case JC is 4 years old suffered from nasopharyngeal rhabdomyosarcoma. The tumour blocked both nasal cavities and oropharynx that a tracheostomy was required for obstructive respiratory failure. Endoscopic nasopharyngectomy was performed after chemotherapy and radiotherapy. Complete resection was obtained with minimal peri-operative morbidity. Both cases achieved sustained disease control and are in clinical remission to date.

Results and Conclusion: We shared our experience of two cases of successful salvage of inoperable sinonasal paediatric solid tumour. Endoscopic surgery allowed preservation of organ and lower peri-operative morbidity, compared to primary surgery. It represents possible alternatives to current treatment algorithm.

Nutrition Intake Among Critically Ill Children With Acute Kidney Injury

TY YAU,¹ WF HUI,² C YEUNG,³ WL CHEUNG,² KL HON,² SW KU,² TW CHAN¹

¹Department of Paediatrics, Tseung Kwan O Hospital; ²Department of Paediatrics and Adolescent Medicine, Hong Kong Children's Hospital; ³Department of Dietetics, Hong Kong Children's Hospital, Hong Kong SAR, China

Background: Few studies described nutritional status of critically ill children, especially those with acute kidney injury.

Purpose: To evaluate the nutritional prescription of critically ill children, with or without acute kidney injury, in comparison with international guideline (ASPEN).

Methods: A prospective cohort study was conducted on children aged >1 month to ≤18 years old admitted to the paediatric intensive care unit (ICU) of Hong Kong Children's Hospital from 6/2020 to 6/2021. The energy and protein intakes of critically ill children via parenteral and enteral route were calculated and compared with recommendation from international guidelines.

Findings: There were 253 eligible admissions (59.2% in males, with a median age of 4.9 [9.7] years). The overall AKI incidence was 41.9%. 70.3% of AKI group and 86.8% non-AKI group received enteral feeding. 17.3% of AKI group and 16.9% non-AKI group received parenteral feeding. The median (IQR) of average total energy intake of AKI and non-AKI group were 10.7 (13.7) and 10.42 (19.3) kcal/kg/day, respectively. The median (IQR) of average total protein intake of AKI and non-AKI group were 0.1 (0.5) and 0.5 (0.8) g/kg/day, respectively. While both AKI and non-AKI groups showed energy underfeeding as suggested by international guideline, AKI group received significantly lower recommended energy need than non-AKI group (19.7% vs 32.0%, $p < 0.001$).

Conclusion: Energy and protein underfeeding in critically ill children was commonly observed, especially for those with acute kidney injury.

Case Report of Acute Disseminated Encephalomyelitis (ADEM): An Unusual Presentation of Scrub Typhus in Paediatric Patient

HY NG, KW TSUI, KH MA, KY LIU

Department of Paediatric and Adolescent Medicine, Alice Ho Miu Ling Nethersole Hospital, Hong Kong SAR, China

Background: Scrub typhus is a notifiable disease in Hong Kong, with up to 28 cases reported per year in the past 10 years. The common presentations include pyrexia of unknown origin, presence of eschar, and generalised lymphadenopathy. Neurological manifestation is uncommon, especially for acute disseminated encephalomyelitis (ADEM) in the global population.

Findings: A 33-month-old girl who enjoyed good past health presented to our department with prolonged fever, confused consciousness, bilateral lower limb weakness, and urinary incontinence. Cranial and Spinal magnetic resonance imaging showed T2 hyper-intense signals over bilateral thalamus and long segments of spinal cord. Both clinical and radiological presentations were compatible with the diagnosis of acute disseminated encephalomyelitis. Subsequent workup revealed a significant four-fold increment in the antibody level for *Orientia Tsutsugamushi*. The patient was given a course of methylprednisolone and intravenous immunoglobulins due to the progression of the neurological symptoms. She also completed a course of doxycycline as a treatment for scrub typhus infection. Subsequently, she achieved full recovery clinically and radiologically.

Conclusion: Acute disseminated encephalomyelitis remains a diagnosis of exclusion and is commonly post-infection related. However, the refractory clinical presentation should always raise suspicion on alternative diagnosis. It is important to stay vigilant in screening for underlying treatable atypical infection.

A Training Program on Enhancing Nurse's Competency in Neonatal Transportation

WM LEE, GS CHIU, SY TSANG, SC CHEUNG, KM CHAN,
CY CHAN, SY LEUNG, SYP CHOW, WY CHAN, MWT
CHIU, KW SIN

Queen Mary Hospital, Hong Kong SAR, China

Background: Certain training and practice gaps in neonatal transportation were identified, such as staff unfamiliarity with new transportation equipment, deficit in updated knowledge of transporting intubated neonates, out-of-date transportation documentation, ineffective team coordination in safe transfer of baby between transportation and bed units, fragmented resource information and insufficient resource nurses.

Purpose: A structured training program was conducted between January and September 2021 to equip a team of 10 experienced PNICU nurses to be trainer and resource nurse in neonatal transportation, and to enhance staff knowledge and competence in neonatal transportation.

Methods: A train-the-trainer program was first arranged to train resource nurses as trainers through attending mandatory e-learning modules and obtaining a certificate, briefing by equipment specialist, and passing competency assessment by returned demonstration on operation of transportation units to nurse consultant, and to take up preparatory work in developing resource materials, competency assessment checklist, transportation documentation, new standardised transfer sequence and workshop scenarios. In part 1 – Know the transportation system, staff became familiar with the transportation system via attending online training to get a certificate and passing competency assessment by returned demonstration to designated trainer. In part 2 – Simulation workshop, staff learnt how to maintain effective team coordination and troubleshoot sudden deterioration through scenario-based workshop and debriefing. All training materials were vetted by neonatal tram heads who were instructors of HA neonatal transportation simulation training.

Findings: Staff competency in neonatal transportation increased as 111/123 (90%) of staff completed part 1 and 83/111 (75%) of staff with at least 2 years of experience who had the prerequisite of passing part 1 participated in part 2, 7 residents joined simulation workshop to improve communication and teamwork, staff evaluation on simulation workshop was positive. Common misconceptions or errors identified during workshop were clarified and discussed during debriefing, including how to choose appropriate transportation systems and prevent

baby from hypothermia/hyperthermia, as well as the importance of using humidvent and EtCO₂ monitoring for intubated baby, and turning on ventilator before transferring baby.

Conclusion: Sustainability of staff training on neonatal transportation can be promoted via refresher training program with replicated methodology and video-taping new training materials. Compliance on applying the learnt knowledge and using new transportation documentation in daily practice will further be reinforced by resource nurses.

Severe Hyponatraemia and Hyperkalaemia in a Male Infant: Not Always CAH

WH CHUNG, MCI KUOK, WKY CHAN

Department of Paediatrics, Queen Elizabeth Hospital, Hong Kong SAR, China

Introduction: Hyponatraemia with hyperkalemia is an uncommon finding in infancy but represents a medical emergency. Although congenital adrenal hyperplasia (CAH) remains the most common cause, it is pivotal to consider other causes such as pseudohypoaldosteronism (PHA). We report an infant presenting with features of PHA in the setting of urinary tract infection.

Findings: A 6-month-old boy with a good past health presented with failure to thrive, emesis and shock. Apart from significant dehydration and poor perfusion, systemic examination revealed no abnormalities. Particularly, his external genitalia was normal with no abnormal pigmentation. Investigations showed severe hyponatremia (Na 119 mmol/L), hyperkalemia (K 6.6 mmol/L) and normal anion-gap metabolic acidosis (HCO₃ 9 mmol/L). Renal function was mildly deranged (urea 6.8 mmol/L, creatinine 44 umol/L), and lactate level was normal. He initially required intraosseous fluid resuscitation and correction of electrolytes, and also received intravenous meropenem after sepsis workup. His catheterised urine showed pyuria which eventually grew *Escherichia coli*. Further evaluation showed unremarkable CAH profile, but markedly elevated serum renin (41.92 ng/ml/hour, Reference: 2.4-37.00 ng/ml/hour) and aldosterone levels (102919 pmol/L, Reference 56-1943 pmol/L). His abdominal ultrasound showed right hydroureteronephrosis without adrenal anomalies. The clinical presentation and biochemical markers were suggestive of secondary pseudohypoaldosteronism, which could be associated with urinary tract malformation and infections. His condition stabilised during hospitalisation, and serial monitoring

demonstrated normalisation of electrolytes, renin and aldosterone levels.

Conclusions: Though mostly transient, secondary pseudohypoaldosteronism can present with life-threatening electrolyte disturbances. Paediatricians should be attentive to this possible diagnosis, especially in patients with urinary tract malformation or infections.

Simulation Workshop on Procedural Skills Training for Paediatric Residents: A Regional Hospital's Experience

NM CHAN,¹ CI KUOK,¹ S TO,¹ PY LEUNG,¹ SH LEUNG,² WKY CHAN¹

¹Department of Paediatrics; ²Multi-disciplinary Simulation and Skills Centre, Queen Elizabeth Hospital, Hong Kong SAR, China

Introduction: Paediatric Essential Skills Workshop has been organised regularly by the Department of Paediatrics of Queen Elizabeth Hospital, with the Multi-disciplinary Simulation and Skills Centre (MDSSC) of the hospital.

Objective: The aim of the workshop is to provide a structured simulation-based training program on common paediatric procedures for paediatric residents.

Methods: Half day simulation workshops were held annually at the MDSSC since 2021. The procedures in the curriculum included ultrasound-guided central venous line insertion, neonatal exchange transfusion, thoracocentesis, intraosseous access and paediatric endotracheal intubation. Pre-course study materials were provided to the participants in advance for self-study. The materials covered basic knowledge on the indications, steps of procedures, potential risks and complications of each procedure. The participants were divided into small groups and rotated into different stations during the course. The participants were asked to complete an anonymous questionnaire online after the course.

Results: A total of 38 participants have joined the workshops since 2021. Of which 32 participants have returned the post course questionnaire. The participants were doctors in their Paediatric resident training. The overall satisfaction score was 4.84 out of 5. All respondents agreed or strongly agreed that the course enhanced quality of care and patient safety. They reported that simulation is an effective mode to achieve the learning objective of the workshop. They rated the course 9.63 out of 10 in recommendation to other colleagues to attend.

Conclusion: Procedural skills are an essential part of paediatric training. Our data illustrated that paediatric

residents valued highly on the simulation based procedural skill workshops run by the department. Certain procedures are important for patient care but are less frequently encountered clinically by trainees in their training. Simulation training has provided an opportunity for residents to acquire those procedural skills.

Using a Pre-Recorded Video for Cardio-Pulmonary Resuscitation (CPR) Education of the Parents of High-Risk Infants to Improve the Effectiveness, Confidence and Stress Level in Comparison with Using a Leaflet Before Discharge

HY POON, CY CHAN, YN YAU, HT TANG, CM YAU, PK MA, WK BAO

Neonatal Intensive Care Unit (NICU), Department of Paediatrics and Adolescent Medicine, United Christian Hospital, Kowloon East Cluster, Hospital Authority, Hong Kong SAR, China

Introduction: Training the parents of high-risk infant to handle the emergencies at home is the pre-discharge requirement. Learning materials should be evaluated the extent to which is effectiveness, improve confidence and reduce the stress of parents.

Objectives: To compare the effectiveness in terms of training time and numbers of attempts, the confidence and the stress level of parents learning CPR with or without pre-recorded video.

Methodology: Team members recruited the parents in convenience sampling. They were divided into a control group (leaflet) and intervention group (leaflet and pre-recorded video) alternately. Both groups required to self-study the learning materials before hands-on session. Also, the participants returned the skill and completed a validated quantitative questionnaire to rank their confidence as well as stress level before and after learning CPR. Paired t-test was used to compare the results of two groups.

Results: Eleven parents participated in the study. Findings demonstrated that CPR training materials (leaflet or leaflet and pre-recorded video) increased their confidence level and reduced their stress level in both groups ($p < 0.001$). Intervention group obtained a higher mean score (1.4 ± 1.0) in confidence level than the control group (1.2 ± 0.6) and less number of attempts (mean 1.5 ± 0.5) than the control group (mean 2.6 ± 0.5) significantly ($P < 0.01$). Moreover, CPR training time was significant shorter ($P = 0.015$) in the intervention group (mean 28.3 ± 9.3 minutes) than the control group (mean 83 ± 31.1 minutes).

Conclusion: The result acts a guide to improve and enhance the parents learning the skills of CPR in effective, more confident and less stressful way.

Quality of Life - Management of Treatment-Induced Constipation in Paediatric Oncology Patients: A Pilot Study in Hong Kong Children's Hospital

WK FAN,¹ WMS Ho,¹ KHK FUNG,² LS YAN,¹ HM NG,¹ PK TSANG,¹ KT CHAN¹

¹Hong Kong Children's Hospital; ²The Hong Kong Polytechnic University, Hong Kong SAR, China

Background: Treatment-induced constipation (TIC) could severely jeopardise patients' quality of life (QOL) and increase the medical cost attribute to prolong hospital stay. Yet, there is a practice gap of less standardised assessment on severity of constipation nor quality of life and insufficient education material for symptom management in paediatric oncology patients.

Purpose: To perform standardised assessment; implement evidence-based practice and improve patients' QOL through a comprehensive education program.

Methods: A quantitative pilot study based on the Donabedian model was carried out from February to October 2022 with patients aged 12 to 18 years. Patient recruitment by convenience sampling. Patient education through a talk with tailor-made informative booklet. Content covered with concepts of constipation, symptoms management methods and suggestions on lifestyle modification. Bristol stool assessment tool was selected to teach patient self-assessment. A compelling 3D-printed model prepared for demonstration to sparkle patients' curiosity and enhance their awareness. A before-after comparison of worldwide used and validated tools was selected for assessing the effectiveness of the program, including Constipation Severity Instrument (CSI) and Patient Assessment of Constipation Quality of Life (PAC-QOL). Besides, comparison of a custom-made knowledge assessment test which covered the content in the education booklet was also adopted.

Findings: This is an on-going study with 10 patients recruited. Encouraging results showed patients' knowledge consolidated after the program with a knowledge assessment mean score with 50% improvement (from 6.5 to 9.75 out of 10). Besides, it proved that improving TIC directly enhances the QOL. Both CSI (from 38.8 to 20 out of 73) and PAC-QOL (from 51.8 to 26.8 out of 112) scored decreased by 48% which represent less severe constipation

and better QOL in terms of worries and concerns, physical discomfort, psychological discomfort and satisfactions. All shown positive feedback on knowledge, attitude & lifestyle modification. All agree that they have confidence for self-initiated symptom management and are eager to explore more.

Conclusions: The results support a structured symptoms management programme for active symptom management by patients and improve their QOL in a local setting. Future directions include developing an English version of the education material to extend its use and promote to all age patients.

Physiotherapy Trainings for a Patient with Spinal Muscular Atrophy on Nusinersen Treatment: A Case Study

MW CHEUNG,¹ SHS CHAN,² YB HO,¹ SWW CHAN¹

¹Allied Health Department (Physiotherapy), Hong Kong Children's Hospital; ²Department of Paediatrics and Adolescent Medicine, The University of Hong Kong, Hong Kong SAR, China

Introduction and Aims: Spinal Muscular Atrophy (SMA) is a neuromuscular disorder characterised by degeneration of alpha motor neurons resulting in hypotonia, progressive muscular weakness, and atrophy. This case study reviewed the changes of motor and lung functions of a 10-year-old boy with SMA type II who has been receiving Nusinersen treatment since age of 2, and reviewed the outcomes of physiotherapy trainings on these functions.

Methods: Physiotherapy records were retrieved between 2/3/2020 and 21/9/2023. Physiotherapy program, including physiotherapy assessment, functional motor training, massage, stretching, hydrotherapy, caregiver education and home exercises, was provided. The timeline of assessments included (1) before commencement of physiotherapy training: February 2020 (Time1, T1), (2) before commencement of training: October 2021 (Time2, T2) and (3) after 19 months of physiotherapy training: June 2023 (Time3, T3). The outcome measures included: (1) Expanded Hammersmith Functional Motor Scale (HFMS), (2) 6-minute walk test (6MWT), (3) Revised Upper Limb Module (RULM), (4) Forced Vital Capacity (FVC), (5) Maximum Inspiratory and Expiratory Pressures (MIP & MEP).

Results: During the reviewed period, 8 half-yearly physiotherapy assessments and 32 weekly trainings (25 hydrotherapy, 7 land-based exercises) were provided. The weekly physiotherapy trainings were implemented in

HKCH Physiotherapy Department from 2/11/2021 to 21/9/2023, when the hydrotherapy service was resumed after the pandemic. Before the implementation of physiotherapy trainings, HFMSE declined from 54/66 (T1) to 49/66 (T2), then improved to 52/66 (T3) after the weekly trainings. 6MWT declined from 50 meters (T1) to 33 meters (T2) before the training program, then improved to 39 meters (T3) after trainings. Similarly, RULM declined from 30/37 (T1) to 29/37 (T2), and then back to 30/37 (T3) after trainings. For the lung function performance, his FVC improved from 0.64L (T1) to 1.29L (T2), then further improved to 1.64L (T3) after trainings. MIP/MEP improved from 30/29 (T1) to 45/33 (T2), then further improved to 58/41 (T3) after trainings.

Conclusions: The outcomes of this case study demonstrated successful improvements of motor and lung functions of a 10-year-old boy with SMA type II on Nusinersen treatment with active physiotherapy trainings. Clinical information was provided for therapists to utilise active physiotherapy trainings for children with SMA.

Simultaneous Repair of Laryngeal Cleft and Oesophageal Atresia: Report of a Case

AKY SU,¹ G LAU,¹ EYK NG,¹ JFW LO,¹ B TSUI,² V WONG,² E CHIN²

¹Department of Otorhinolaryngology, Hong Kong Children's Hospital;

²Department of Paediatric Surgery, Hong Kong Children's Hospital and Prince of Wales Hospital, The Chinese University of Hong Kong, Hong Kong SAR, China

Objective: VACTERL association (Vertebral, Anal, Cardiac, Tracheo/Esophageal, Renal and Limb anomalies) is a rare congenital disorder affecting multiple systems. Despite high mortalities rate, VACTERL survivors often have normal intellectual development and enjoy an average lifespan. To carefully plan corrective surgeries is thus important to avoid excessive surgery, anaesthesia and their possible complications.

Methods: A case treated in Hong Kong Children's Hospital between year 2022-2023 was reported. The patients' clinical charts, radiology images and operative records were summarised. Patient YPC, diagnosed VACTERL at birth, had stormy newborn period due to respiratory distress, secondary to complex tracheoesophageal anomalies: a type C tracheoesophageal fistula with wide gaps, severe tracheomalacia and a grade 3 laryngeal cleft. After stabilisation of cardiopulmonary status with ligation of tracheal fistula, gastrostomy, tracheostomy, aortoplexy and atrial septal defect repair,

YPC was planned for definitive repair of the tracheoesophageal anomalies at 10 months of age. The surgery adopted an open cervical approach, first to restore digestive tract continuity by gastric-pull up, then reconstruction of the laryngeal framework with rib cartilage graft. The surgery was uncomplicated. To date, YPC starts to restore swallowing, and decreases ventilator use.

Results and Conclusion: We shared our experience of a successful simultaneous repair of laryngeal cleft and type C oesophageal atresia in a 10-month-old infant. This collaboration is a local pioneer. Careful planning of the surgery allows both teams to operate in a virgin neck, maximising surgical success.

A Multidisciplinary Training Program on Physical Fitness and Health-Related Quality of Life in Children with Diabetes Mellitus

AWL TUNG,¹ JCY KWOK,¹ MMW CHEUNG,¹ YB HO,¹ IYM POON,² CPL CHAN,² JYL TUNG,² SWW CHAN¹

¹Allied Health Department (Physiotherapy); ²Department of Paediatrics and Adolescent Medicine, Hong Kong Children's Hospital, Hong Kong SAR, China

Background: Previous studies reported that high-intensity interval training (HIIT) had a potential effect on a variety of outcomes, including improved body weight, body mass index (BMI) and exercise capacity for children with diabetes mellitus (DM). As such, HIIT was introduced into our structured program for children with DM in Hong Kong Children's Hospital since 2021. The purpose of this study is to investigate the impact of a weekly training program on physical fitness and Health-related quality of life (HRQOL) in these children.

Methods: Participants with DM were recruited into the program. The program consisted of 10 sessions. Each session consisted of 50-minute training, including 10-minute warm-up, 30-minute HIIT (i.e. several rounds of high-intensity movements with 40 seconds workout, 20 seconds rest) and 10-minute cool-down. A physiotherapist led the exercise session, with close glucose monitoring by a specialty nurse and clinical safety oversight by a paediatric endocrinologist. Outcome measures included BMI, predicted percentage body fat, isometric muscle strength testing with hand-held dynamometer (Lafayette Manual Muscle Test System) for selected muscle groups and six-minute walk test (6MWT), and HRQOL by self-reported Pediatric Quality of Life Inventory™ version 4.0 (PedsQL™ version 4.0).

Results: The study was completed by 9 participants (5 Type 1 DM and 4 Type 2 DM) aged 13 to 17 years (mean 15.9±1.45 years). No significant adverse event was reported. After completion of program, there was significant decrease of BMI from 28.33±6.57 to 27.60±6.91 ($p<0.05$) while the predicted percentage body fat was decreased 5.14% from 36.00±9.23% to 34.15±12.56% ($p=0.60$). The isometric muscle strength of shoulder and hand grip was significantly increased from 12.49±4.48 kg to 13.86±3.85 kg ($p<0.05$) and from 24.66±4.48 kg to 25.87±8.73 kg ($p<0.05$) respectively. While the isometric strength of knee and hip muscles was significantly increased from 18.83±7.24 kg to 23.79±5.65 kg ($p<0.05$) and from 18.44±8.59 kg to 25.47±7.96 kg ($p<0.05$) respectively. In addition, the 6MWT was significantly increased from 522.83±74.08 m to 589.67±62.56 m ($p<0.05$). The psychosocial health summary score of the PedsQL™ version 4.0 was improved 6.8% from 69.15±20.24% to 73.87±12.27% ($p>0.05$).

Conclusion: The incorporation of HIIT in our program is well tolerated by the children with DM, and collaboration with specialty nurse and doctor in this program can further enhance program safety. Collectively, this 10-week multidisciplinary training program has the potential to increase physical fitness and quality of life in children with DM.

Application of Whole Exome Sequencing in a Neonatal Intensive Care Unit in Hong Kong: A Regional Hospital's Experience

NM CHAN,¹ KL SIU,¹ IFM LO²

¹Department of Paediatrics, Queen Elizabeth Hospital; ²Clinical Genetics Service Unit, Hong Kong Children's Hospital, Hong Kong SAR, China

Introduction: The diagnosis and management of neonates with suspected genetic conditions admitted for intensive care are often challenging. Whole exome sequencing (WES) has been increasingly used in neonatal population.

Objective: To investigate the diagnostic yield of WES performed for infants in the Neonatal Intensive Care Unit (NICU) setting and to explore its clinical utility in these critically ill infants.

Methods: This is a retrospective review for infants with suspected genetic diseases who were admitted to the NICU of Queen Elizabeth Hospital, Hong Kong in consecutive five years from 1 January 2017 to 31 December 2021 and WES performed.

Results: A total of 18 infants admitted to the NICU had

WES done during the study period for clinical presentation of suspected genetic conditions. Ten infants were male. The mean gestational age was 35 weeks, with range of 25 to 40 weeks. The mean birth weight was 2.72 kg (with standard deviation +/-0.73 kg). The diagnostic yield of WES in this cohort was 61% with genetic diagnosis identified in 11 of 18 cases. Four variants were classified as pathogenic, 6 were likely pathogenic and one was variants of uncertain significance. The age of arriving the diagnosis ranged from 23 days to 6 months. The turnaround time of the WES ranged from 8 days to 3 months. Clinical utility was demonstrated in 10 of 11 diagnosed cases (90%) which is 55% of all tested cases. The clinical utility included surveillance of complications, avoidance of invasive diagnostic procedures, enabled genetic counselling and facilitate decision to palliative care etc.

Conclusion: We reported the use of whole exome sequencing in the NICU of a regional hospital. Given the reasonable diagnostic yield and clinical utility demonstrated, WES should be considered as a helpful and powerful investigation for highly suspected genetic conditions in critically ill newborn infants.

Feasibility and Safety of Arm Port Placement in Paediatric Oncology Patients: Experience in a Single Tertiary Centre

OL CHAN,¹ KKF FUNG,² MT CHIU,² APY LIU,³ EYL KAN²

¹Department of Radiology, Tuen Mun Hospital; ²Department of Radiology, Hong Kong Children's Hospital; ³Division of Haematology and Oncology, Department of Paediatrics, Hong Kong Children's Hospital, Hong Kong SAR, China

Background/Introduction: Ports are often used as central venous access in children with cancer. Ports are traditionally implanted over upper chest wall, however exposure of upper chest may be inconvenient to young female patients. In addition, venous access for chest ports has risk of inadvertent injury to carotid artery. Arm ports are proposed as an alternative for easier port access and reduced risk of inadvertent arterial injury.

Purpose: To evaluate the feasibility and safety of arm port placement in paediatric patients.

Methods: All cases of arm port placement during 2018-2023 were reviewed. Patient demographics, clinical data, procedural details and follow up records were reviewed. Primary outcomes include success rate of arm port implantation, treatment completion rate and complication incidence rate.

Findings: Total 6 patients (5 male, 1 female; age ranged from 12 to 17 years) had arm port placement, all ports were inserted at the right arm. The underlying oncological conditions include intracranial germ cell tumour (n=3), medulloblastoma (n=1), osteosarcoma (n=1) and testicular embryonal tumour (n=1). Arm ports were implanted successfully in 5 patients. There was 1 unsuccessful case due to small venous calibre and failed venepuncture, as a result the patient had chest port placement instead. During follow up period, 4 arm ports were event-free until completion of chemotherapy and were removed. 1 arm port was still in-situ at the time of analysis. Total 1145 catheter-days were analysed, there was no major or minor complication.

Conclusions: Based on our experience, arm ports are feasible and safe for central venous access in paediatric patients.

Central Diabetes Insipidus Masquerading as Post-AKI Diuresis: An Unusual Presentation of Brain Tumour

KKN WONG, MCI KUOK, WKY CHAN

Department of Paediatrics, Queen Elizabeth Hospital, Hong Kong SAR, China

Introduction: Diuresis can occur during the resolution of acute kidney injury (AKI), which may mask a secondary cause of polyuria. We report a case of central diabetes insipidus secondary to a brain tumour, which initially presented with oliguric AKI requiring continuous renal replacement therapy (CRRT).

Findings: A 14-year-old boy with Down's syndrome and intellectual disability presented to us with decreased oral intake and urine output. He had a history of left limb clumsiness for four years, during which prior investigations were declined. Upon admission, he was dehydrated with borderline blood pressure of 89/50 mmHg and tachycardia of 128 bpm. His blood tests showed hypernatremia 168 mmol/L, hyperphosphatemia 3.18 mmol/L, and markedly impaired kidney function with urea 48.6 mmol/L and creatinine 1269 umol/L. His haemoglobin and platelet counts were normal, and his kidney ultrasound was unremarkable, with normal kidney sizes. CRRT was initiated for oliguria and uremia. While his urine output improved subsequently, he developed polyuria up to 6 L/day in the second week of admission. There was also persistent hypernatremia, and further investigations showed raised serum osmolality of 339 mOsmol/kg with low urine osmolality of

171 mOsmol/kg. Central diabetes insipidus was confirmed subsequently with a water deprivation test, and his polyuria was managed with sublingual desmopressin. His MRI brain revealed a germ cell tumour involving his right brain. He was then referred for chemotherapy and radiotherapy.

Conclusion: In addition to post-AKI diuresis, paediatricians need to remain vigilant for alternative causes of polyuria, which may become evident after the resolution of AKI.

Advanced Apheresis Technology – With Glycosorb Immunoabsorption Column in ABO – Incompatible Living Donor Kidney Transplantation: A Successful Paediatric Case in Hong Kong

WMS HO,¹ WS KONG,¹ TWF HO,² EYH CHAN,² ALT MA²

¹Paediatric Haematology & Oncology; ²Paediatric Nephrology Centre, Hong Kong Children's Hospital, Hong Kong SAR, China

Introduction: The development of specific desensitisation regimens has significantly improved the outcome of ABO incompatible (ABOi) living donor kidney transplantation in many well-established centres across the world. This is the first case of ABO incompatible living donor kidney transplantation done in Hong Kong Children's Hospital accomplished by the collaboration between the Paediatric Nephrology team and Paediatric Haematology and Oncology nursing team for supporting the apheresis immunoabsorption instead of conventional therapeutic plasmapheresis (TPE).

Aim: To remove the blood group specific antibodies in preparation of the ABOi Transplant from a mother (blood group AB) to her son (blood group A).

Methods: A 13-year-old boy with autosomal recessive cystic kidney disease has been put on haemodialysis for 5 years since April 2018. He was highly sensitised to the local population and therefore the chance of receiving a transplant from a deceased donor was slim. ABOi transplant was contemplated with mother as the donor, and the pair was HLA compatible. Rituximab was given 4 weeks prior to transplant followed by Prednisolone, Tacrolimus and Mycophenolate Mofetil. Since this was a new service, a trial run of glycosorb was done 3 months prior to the actual apheresis session. A total of 4 sessions of immunoabsorption with Glycosorb ABO column on an apheresis machine prior to kidney transplant. The patient managed to have a very low anti-B titre of <1:2 prior to transplant which permitted ABOi transplant to proceed with success.

Results: From the first trial run with the glycosorb, the anti-B IgG titre dropped from 1:128 to 1:16. Then the subsequent four sessions of immunoadsorption with Glycosorb B column were done in July 2023. The initial anti-B IgG titre was at 1:64 and finally dropped to <1:2 (target is <1:8) just prior to the transplant surgery. The kidney transplant was done smoothly on 12 July 2023 and the patient was uneventful and discharged after one month with normal kidney function.

Conclusions: The first ABO incompatible living donor kidney transplant was successfully done with the collaboration of Paediatric Nephrology team and Paediatric Haematology and Oncology team. This is a milestone of paediatric kidney transplant in Hong Kong and hopefully more children in need would be benefited.

Issues Arising from a Case of Breast Pain Lasting for 3 Weeks Ending Up as a Breast Abscess

SSF LEUNG,¹ JSY FONG,¹ C SING,¹ KM CHOW²

¹Breast Feeding Clinic, CUHK Medical Centre (CUHKMC); ²The Nethersole School of Nursing, The Chinese University of Hong Kong, Hong Kong SAR, China

Background: With the effort of Department of Health, Hospital Authority, UNICEFHK etc., many mothers initiated breast feeding (BF). However, some decided to drop out when they experienced BF problems. Supporting services are important to prevent the dropout rate. In the first year when the Breast Feeding Clinic of CUHKMC was established, breast abscess was diagnosed in 25% of mothers who came for breast pain. This reflected a general delay in management as abscesses were usually preceded by blocked duct and mastitis.

Purpose: The delay could be a lack of BF support services or a lack of knowledge of mothers. A case was used for illustration.

Methods and Findings: A mother started to experience breast pain from day 10 onwards. She sought help from Pui Yuet and milk enhancing ladies. On day 17, she went to MCHC and was given 2 weeks of antifungal cream. The pain persisted. By the time she came to the breast feeding clinic, CUHKMC, she was diagnosed breast abscess requiring surgical intervention.

Conclusion: Many breast feeding mothers were not sure where they can seek for help when they experienced BF problems. Pui Yuet seemed to be the ones they trusted in the initial postpartum period. More training to the Pui Yuet in Hong Kong is necessary so that they know when and where to refer.

Quality Improvement Program: Introduction of Crew Resource Management in Neonatal Resuscitation to Improve the Team Dynamic in Neonatal Unit

KF CHOI, MY IP, WY LAM, SP LAW, M LEE, MS NG, LP TSE, YP YUEN, SM CHENG

Department of Paediatrics, Prince of Wales Hospital, Hong Kong SAR, China

Introduction: Resuscitation is a complex, time-critical and stressful task that requires effective teamwork. An analysis of all medical errors occurring in neonatal resuscitation revealed that the majority were due to ineffective teamwork and communication breakdown. The introduction of Crew Resource Management (CRM) in neonatal resuscitation aims to address cognitive and interpersonal behaviors that contribute to optimal team dynamic.

Purpose: The objective of introducing CRM training as our strategies is to apply its concept to clinical settings and standardise the manner of communication between staff so as to promote patient safety during the neonatal resuscitation. Also, the goal is to enhance staff competency and confidence during resuscitation, thereby strengthen their resuscitation skill and team dynamic.

Methods: Pre-intervention data was collected prior to the bedside training. Organised briefing sections were organised for nurses to share information about the concepts of CRM and NRP. Stimulation-based training and workshop were conducted. Post-intervention data collection was carried out to evaluate its effectiveness of the training.

Findings: The nursing knowledge of CRM concept was relatively low (57%) before the training. After the briefing section, their knowledge greatly improved, and they attained an average score of 100% in the post-education test. The overall satisfaction of the training was high (94%). During the simulation-based training, staff was able to apply the CRM concept in the resuscitation. A significant improvement in competence and self-confidence among staff also achieved.

Conclusion: The bedside training and workshop were fruitful in improving confidence in applying CRM in neonatal resuscitation. The nursing staff displayed a positive attitude and provided impressive feedback regarding the training. The program successfully reinforced nursing knowledge of CRM and NRP concepts. Based on these positive outcomes, it is recommended to promote and sustain this program.

Quality Improvement Program: Care Bundles in Preventing Intraventricular Haemorrhage Among Preterm Neonates in NICU

ML CHENG, NY CHIU, M LEE, SY WONG, MY IP, SM CHENG

Department of Paediatrics, Prince of Wales Hospital, Hong Kong SAR, China

Introduction: Intraventricular haemorrhage (IVH) is a major cause of brain injury and a contributor for morbidity and mortality among preterm neonates. Neonates with severe IVH may develop significant and long-term neurodevelopmental disabilities. An effective IVH care bundle reduces the incidence and severity of IVH. However, there is lack of standardised nursing care in IVH care bundle for PWH NICU.

Purpose: The program provides IVH care bundles to preterm neonates born before 32-week-gestation. The program's aim is to examine the effectiveness of designated IVH care bundles. The main outcome of the program was the reduction in the incidence and severity of IVH.

Methods: Pre-intervention data was collected prior to the implementation of the bundle care. A literature search was conducted to develop an evidence based IVH care bundle. Briefing session was organised for nurses to share information about the care bundle. The program was carried out and promoted. Post-intervention data collection was conducted after the implementation to evaluate the effectiveness of IVH bundle care.

Findings: The rate of IVH (44%) and severe IVH (19%) before the CQI program were high. The nursing knowledge of IVH care is relatively low (51%). After the bundle implementation, the nursing knowledge significantly improved with an average post- education test score of 97%. The incidence of severe IVH reduced remarkably. The compliance rate of program reached 100%.

Conclusion: The IVH care bundle was effectively implemented, resulting in a remarkable reduction in the incidence of IVH and severe IVH cases in the NICU. Nursing staff welcomed the IVH care bundle with a positive attitude and provided valuable feedback. We continue to implement the IVH care bundle in our NICU to achieve the program's aim.

Two Chinese Adolescents Presenting with Graves' Disease and Thyroid Carcinoma

GSW PANG, YCL LEUNG, APY LIU, CH FU, LS YAN, SWY POON, JYL TUNG

Hong Kong Children's Hospital, Hong Kong SAR, China

Background: Graves' disease (GD) is the most common cause of hyperthyroidism in children. The association between GD and diffuse thyroid carcinoma (DTC) is not commonly described. Here we present two ten-year-old Chinese girls presenting concurrently with GD and DTC.

Cases Presentation: The first patient presented with euthyroidal neck swelling. Ultrasonography of her neck showed a single large thyroid nodule with increased intralesional vascularity and coarse calcification. Fine needle aspiration yielded Hurthle cell atypical of undetermined significance. She developed thyrotoxicosis with suppressed TSH to <0.01 mIU/L, fT4 raised to 17.4 pmol/L. Anti-TSH receptor was raised to 1.5 IU/L (R.I. <1.0 IU/L). She was given carbimazole, hemithyroidectomy then completion thyroidectomy. Histology showed follicular carcinoma with Hurthle cell features, with limited vascular invasion and no contralateral lobe involvement, stage pT3N0M0. The second patient presenting with thyrotoxicosis with fT4 was raised to 92.3 pmol/L. Initial ultrasonography was normal. Her thyroid function was well controlled for 3 years by carbimazole. Latest ultrasonography revealed a diffuse 5 cm lesion with heterogenous hyper echoic parenchymal echo pattern and no discrete borders. FNAC of the lesion and lymph nodes suggest metastatic disease, thus complete thyroidectomy with central and right neck dissection was performed. The diagnosis was diffuse sclerosing variant of PTC with central neck and right neck lymph node involvement, stage pT3N1bM0.

Conclusion: Prospective studies are difficult as GD is common whilst thyroid carcinoma is rare. Studies conducted jointly by paediatric and adult endocrinologists will provide important information for the natural history and response to treatment of concurrent GD and DTC across the population.

A 32 Hours Course to Train Pui Yuet on Knowledge and Skills to Support Hong Kong Breast Feeding Mothers: A Pilot Study

CLL HUI,¹ SSF LEUNG,¹ MYL YU,² CKL TSUI,³ WH TAM,⁴ MS WONG⁵

¹Breast Feeding Clinic, CUHK Medical Centre; ²La Leche League-Hong Kong; ³Continuous Professional Educational Centre; ⁴Department of O&G, CUHK Medical Centre, ⁵Department of Food Science and Nutrition, The Hong Kong Polytechnic University, Hong Kong SAR, China

Background: Pui Yuet (postpartum nannies) have strong influences on the infant feeding practice in the first month of life. However their 152-hour Foundation training has little coverage on breastfeeding and nutrition needs of postpartum women.

Purpose: To assess the effectiveness of a professional-led four-day (8 hours/day) in-person course for improving Pui Yuets' knowledge on providing breastfeeding support.

Methods: A 32 hours course with a focus on basic physiology of breast milk production, emotional and nutritional needs of postpartum women, common breast feeding problems in mothers and babies was developed basing on science and delivered by experienced paediatrician and International Board Certified Lactation Consultants (IBCLC). Non-parametric McNemar's χ^2 test were used to examine the pre- and post-test difference in knowledge assessed in a 45-item self-administered questionnaire.

Findings: Among the eight Pui Yuets' enrolled, there were significant improvements in their knowledge assessed with the questionnaire ($p < 0.05$). More specifically, improved knowledge concerning supporting mothers with little milk supply in early postpartum period, pumping breast milk, supplementation of infant/maternal formula, source of breastfeeding support in Hong Kong and nutritional needs of postpartum women.

Conclusions: Our pilot data showed that Pui Yuets' knowledge and skills on breastfeeding can be improved through a short training course.

Outpatient Treatment for Failure to Thrive Due to Early Lactation Failure

SSF LEUNG

Breast Feeding Clinic, CUHK Medical Centre, Hong Kong SAR, China

Background: Breast fed babies discharged from maternity hospitals were usually followed up in MCHCs. When there was exaggerated weight loss in the first week or inadequate weight gain in the first month babies may be

referred to the Paediatric ward of the HA hospitals as failure to thrive. Baby was admitted without the mother and was bottle fed with infant formula to ensure weight gain. Such practice was not ideal to support breast feeding.

Purpose: One case was used to demonstrate that early lactation failure can be managed as an outpatient.

Methods: Mother of a baby with early lactation failure refused to have her baby separated and admitted. They came to the breast feeding clinic, CUHKMC. Breast feeding skill was checked by a trained medical staff (author) and mother was found to have inadequate milk production. So a milk supplemental system was used to top up the deficit.

Findings: Follow up showed a definite catch up growth. Mother was happy because she was allowed to continue feeding on breasts. There was no mother-baby separation and baby had no nipple confusion.

Conclusion: MCHCs or HA Paediatric ward may need more resources to deal with similar cases of early lactation failure without mother baby separation. On the other hand, severe cases with suspected electrolyte imbalance should be admitted for urgent management.

Overconsumption of Protein and Inadequate Consumption of Fibre in Hong Kong Lactating Mother

SSF LEUNG,¹ PPS YIP,² ZY CHEN²

¹Department of Paediatrics; ²Food and Nutritional Sciences Programme, School of Life Sciences, The Chinese University of Hong Kong, Hong Kong SAR, China

Introduction: Over-nutrition in women is common during pregnancy and after child birth. There was a general belief in Hong Kong (HK) that women should increase their meat consumption in order to produce more milk and to enhance baby's growth. This is a study on the diet and nutrient intake of lactating women.

Subjects and Methods: Sixty mothers who were fully breast feeding their babies at 4 m and 6 m postpartum were interviewed. A 3 day dietary record were collected by a research dietitian and nutrients were calculated using a food composition database of USA.

Results: The mean (sd) daily protein intake were 122.5 (48.8) g, much higher than the recommendation of 1.1 g/kg body weight. The daily fibre intake was 15.4 (9.6) g, much lower than the recommendation of 30 g.

Discussion: Pui Yuet is a new profession in HK since 1997. They used to prepare lots of meat and too little vegetables. Mothers themselves may also belief that more meat consumption is good for health.

Conclusion: Mastitis was recognised to be related to dysbiosis. Therefore it is important to educate mothers and pui yuet on the microbiota friendly diet. Such diet should consist of more whole grains, beans, vegetables and fruits but with less but adequate meat.

Neuropsychiatric SLE (NPSLE) in Children and Adolescents with Lupus Nephritis

MLH WONG,¹ EYH CHAN,² KM YIP,³ WHS WONG,³ ALT MA⁴

¹Department of Paediatric and Adolescent Medicine, Princess Margaret Hospital; ²Paediatric Nephrology Centre, Hong Kong Children's Hospital; ³Department of Paediatrics and Adolescent Medicine, The University of Hong Kong; ⁴Paediatric Nephrology Centre, Hong Kong Children's Hospital, Hong Kong SAR, China

Background: Data on neuropsychiatric manifestations in childhood-onset lupus nephritis (cLN) are limited.

Purpose: To evaluate the characteristics, associated factors and outcomes of NPSLE in Chinese children with cLN.

Methods: We conducted a retrospective cohort study of biopsy-proven cLN diagnosed from 2000 to 2021. NPSLE was defined according to the 1999 ACR nomenclature with the exclusion of those with isolated headaches, anxiety or mood disorder.

Findings: Ninety-five Chinese children with cLN were included. Eleven patients developed NPSLE (12%). Estimated glomerular filtration rate <30 ml/min/1.73 m² at diagnosis of LN (ORadj 6.73, 95% CI 1.29-35.11) and higher maximal proteinuria during the observation period (ORadj 1.07, 95% CI 1-1.13) were predictive of NPSLE upon multivariable analysis. Compared to children without NPSLE, significantly more children who developed NPSLE flare after kidney involvement had a history of medication non-adherence (100% vs 25%, p<0.001), higher degree of proteinuria at the diagnosis of LN (urine protein/creatinine ratio, 5.74 vs 2.35 mg/mg, p=0.04) and during the entire observation period (urine protein/creatinine ratio, 13.2 vs 3.3 mg/mg, p=0.004). Patients with NPSLE had a significantly lower complete remission rates for LN at 6- and 12-month post-induction (27.3% vs 70.2%, p=0.014; 45.5% vs 83.3%, p=0.01, respectively). Kaplan-Meier analysis showed that patients with NPSLE had worse kidney and patient survivals (log-rank test, p<0.001, 0.0014 respectively) than those without NPSLE.

Conclusions: Worse kidney and patient survivals are observed in cLN patients with NPSLE. Severe LN

manifestation and medication non-adherence are associated with the development of NPSLE.

Effect of Family Dynamics and Maternal Stressors on Child Physical Abuse and Psychosocial Problems: A Longitudinal Study

RS WONG,¹ KTS TUNG,² KM YIM,³ KL CHAN,⁴ P IP²

¹Department of Special Education and Counselling, The Education University of Hong Kong; ²Department of Paediatrics and Adolescent Medicine, The University of Hong Kong; ³Caritas Project Hyacinth – Enrichment Service for Young Mothers, Youth and Community Service; ⁴Department of Applied Social Sciences, The Hong Kong Polytechnic University, Hong Kong SAR, China

Background: Early childbearing is associated with high maternal stress and family violence. However, the long-term effects of rapid repeat pregnancy (RRP) in young motherhood on child outcomes remain largely unknown.

Purpose: This study examined the pathways between maternal RRP at young ages and child psychosocial problems and emergency room visits in later years.

Methods: A total of 232 mother-child dyads in Hong Kong provided baseline data in 2015 (Time 1; T1) and follow-up data six years later in 2021 (Time 2; T2). At T1, mothers completed questionnaires about child physical abuse frequency and family cohesion and reported their own stress levels. At T2, mothers were re-surveyed with the same questionnaires about child physical abuse frequency and family cohesion. Children's psychosocial problems were assessed through parent proxy-reports and records of emergency room visits were retrieved from hospital databases. Data were examined using path analyses. Findings: After adjusting for demographic information, maternal history of RRP was associated with child physical abuse at T1 ($\beta=0.15$, p<0.05) and in turn linked to child physical abuse recurrence ($\beta=0.22$, p<0.01) and emergency room visits at T2 ($\beta=0.22$, p<0.001). Improved family cohesion over time did not break the link between maternal RRP and child physical abuse recurrence.

Conclusions: Poor family dynamics can lead to child physical abuse recurrence and worsen developmental outcomes in children particularly when coupled with other risk factors such as maternal RRP at young ages. Early interventions to enhance support and reduce vulnerabilities are important for preventing child physical abuse in at-risk families.

Successful Intra-Operative RLN Monitoring in Neonatal Surgery: A Case Report of Left 4th Branchial Anomaly Excision

KWY LAM,¹ JFW LO,² AKY Siu²

¹The Chinese University of Hong Kong; ²Hong Kong Children's Hospital, Hospital Authority, Hong Kong SAR, China

Introduction: A fetus at 33 weeks gestation was referred to the Chinese University of Hong Kong's multidisciplinary team due to the presence of a large anterior neck mass detected on antenatal ultrasound. The mass was later diagnosed as a left 4th branchial sinus and cyst, which exhibited swelling and infection after birth, necessitating early surgical intervention.

Purpose: The surgical intervention presented several challenges, with recurrent laryngeal nerve (RLN) injury being the most significant. In pediatric cervicothoracic surgery, RLN injury is common due to the lack of well-established intra-operative RLN monitoring techniques in pediatric patients. Our aim is to present a case of successful excision of a left fourth branchial anomaly while incorporating intra-operative RLN monitoring for RLN safeguarding.

Methods: The case was treated at Hong Kong Children's Hospital in July 2023. Intra-operative RLN monitoring was achieved by inserting bipolar hypodermic needles into the vocalis muscles using a direct laryngoscope. The Medtronic NIM system was utilised to monitor the RLN through the hypodermic needles.

Findings: The surgery proceeded smoothly, and complete excision of the left fourth branchial anomalies was achieved with the aid of intra-operative RLN monitoring. The newborn experienced a full recovery of vocal cord functions, resumed oral feeding afterwards.

Conclusions: This case demonstrates the feasibility and safety of intra-operative RLN monitoring and its potential to mitigate RLN injury risks in neonatal surgery. Further research and consideration are necessary to explore the integration of RLN monitoring in similar high-risk procedures, aiming to improve patient outcomes and reduce RLN-related complications.

Education Program for Paediatrics Nurses on Managing Kawasaki Disease

PY LEE, YM LAM, M LI

Prince of Wales Hospital, Hospital Authority, Hong Kong SAR, China

Background: Kawasaki disease (KD) is a common acquired heart disease in children in Hong Kong with a high incidence of cardiac complications. Nurses play a crucial role in providing care and monitoring patients. The incidence of KD is increasing, and timely treatment can reduce complications. There is a knowledge gap among nursing staff due to changes in disease management and lack of training during COVID pandemic. The high attrition rate of nurses further highlights the need for education and training.

Purpose: To enhance nursing staff's knowledge on KD; to introduce new updates of the disease; and to increase self-confidence of nursing staff in managing KD patients.

Method: The project was conducted by one-group pretest posttest design with 32 RNs or ENs in general paediatric department. The interventions included an education talk, a reference booklet, and a modified pamphlet. Our observational measurements contained a set of pretest and posttest with 15 MCQs and evaluation questionnaire.

Findings: The average correct rate increased from 43% in pretest to 71.4% in posttest. There was significant improvement in knowledge esp. in nursing management of KD. Eighty-five percent of participants thought their confidence in managing KD patients enhanced after the program.

Conclusion: Participants' knowledge of KD improved after an education program, as reflected in higher post-test scores and positive feedback from participants. This boosted their confidence and competence in nursing care, disease monitoring, and patient education. Regular talks or case sharing sessions and a supportive learning environment are essential for encouraging ongoing learning and maintaining high-quality nursing care.

A Systematic Review: The Application of Virtual Reality Technology in the Treatment of Children with Autism Spectrum Disorder

T TAM,¹ KTS TUNG,¹ RS WONG,^{1,2} P IP¹

¹Department of Paediatrics and Adolescent Medicine, Li Ka Shing Faculty of Medicine, The University of Hong Kong; ²Department of Special Education and Counselling, The Education University of Hong Kong, Hong Kong SAR, China

Introduction: Autism Spectrum Disorder (ASD) involves challenges in social communication, emotion, and behaviour. According to government statistics (2019-2020), an estimated 1.4% of children under the age of 15 in Hong Kong have ASD. The application of virtual reality (VR) technology to enhance the social skills in autistic children has gained considerable attention.

Purpose: To evaluate the recent evidence regarding the applicability of VR technology in children with ASD, the user experience and the level of acceptance by their guardians.

Methods: This study conducted searches in the PubMed database and selected English articles published in the past decade (2013-2023). The keywords were: ("VR" OR "virtual reality") AND ("children" OR "child" OR "adolescent") AND ("ASD" OR "autism" OR "autism spectrum disorder").

Findings: The searches retrieved 19 records, with 9 selected for full-text screening. Two studies observed that conventional approaches (e.g., behaviour and educational options) necessitated significant time and energy for creating rehabilitation training scenarios for children with ASD. All studies proved VR technology is more cost-effective, as it creates safe, controllable and repeatable rehabilitation scenarios. Considering anxiety and fear experienced by children with ASD, it is recommended to integrate picture communication, visual stimulation, and cartoon animation into virtual scene design. Participants showed improvement in emotion recognition, expression, and social interaction. One study found that eight out of nine children successfully addressed their phobia and previous participants expressed a positive sense of experience.

Conclusions: VR technology has proven advantageous for children with ASD, and there is widespread acceptance of its utilisation.

Introduction of a New Pain Assessment Tool: The COMFORTneo Scale in NICU

ST YEUNG, WC CHAN, KL KWAN, TW SO, FH WONG, GS CHIU, KY WONG

NICU, Queen Mary Hospital, Hong Kong SAR, China

Introduction: Newborn in NICU were exposed to multiple painful procedures during hospitalisation. They are more hypersensitive to painful stimuli due to immature nervous system. Frequent pain exposure can cause negative impacts on their growth, cognitive, motor and neurodevelopment. Therefore, neonatal pain should be regularly assessed. The present pain assessment tool in our ward is one-dimensional, it focuses mainly on acute post-operative pain; assessment of prolonged pain remains a challenge. We therefore introduce the COMFORTneo scale as a new comprehensive and evidence based pain scale in NICU to provide consistency between nurses and clinicians in measuring and evaluating the presence of pain.

Purpose: The aims of this project were to: (1) raise nurses' awareness of neonatal pain; (2) reinforce the importance of regular pain assessment for neonates; (3) enhance the knowledge of nurses on the COMFORTneo scale; (4) enhance nurses' clinical competencies in performing comprehensive pain assessments of neonates by using the COMFORTneo scale.

Methods: Online pre-test questionnaires were used to assess nurses' knowledge and awareness of neonatal pain, nurses had to view 3 selected video clips to perform pain assessment of 3 neonates by using the existing pain assessment tool (EPAT). Small group education talk was delivered by workgroup members to all NICU nurses, and then nurses were required to complete the post-test questionnaire with the same questions and view the same 3 selected video clips to perform pain assessment of 3 neonates by using the COMFORTneo scale. Thirty NICU nurses were recruited by convenience sampling method to participate in a trial implementation of COMFORTneo scale by performing pain assessment on patients simultaneously but independently with workgroup members.

Findings: The result of this project showed that the education talk can improve participants' awareness of neonatal pain and knowledge in using COMFORTneo scale significantly. The difference between the COMFORTneo score obtained by workgroup members and participants in post-test and trial implementation had no statistical significance ($p > 0.05$). These results showed

that participants could use the COMFORTneo scale appropriately and competently.

Conclusions: The introduction and education program of the COMFORTneo scale was successful in raising NICU nurses' awareness of neonatal pain and the nurses' clinical competencies in using the COMFORTneo scale. We suggest developing a workflow for pain assessment and management including both non-pharmacological and pharmacological intervention with the paediatrician team on the way forward.

Implementation of an Evidence-Based Project Significantly Improves the Temperature of the Preterm Infants after Delivery and Admission to the NICU

SM CHENG, LP HO, KCH TSOI, KY YEUNG

Department of Paediatrics, Prince of Wales Hospital, Hong Kong SAR, China

Background/Introduction: Neonatal hypothermia, defined as a body temperature below 36.5°C, is the leading cause of neonatal morbidity especially in preterm infants. In the past two years, the rate of satisfactory admission temperature in our unit for infants less than 32 weeks of gestation was low. Therefore, it is crucial to identify effective interventions and develop an evidence-based intervention protocol applicable to local context to improve the temperature for preterm infants after delivery room and admission to the NICU.

Purpose: The purpose of this study is to develop, implement and evaluate an evidence-based thermal care intervention protocol to improve the temperature for preterm infant.

Methods: This study adopted a quasi-experimental design with a historical control group to examine the effectiveness of the developed thermal care protocol. Data was collected in two periods corresponding to the pre-implementation (control group) and post-implementation (intervention group) to evaluate the neonatal outcomes such as the admission temperature.

Findings: A total of 118 preterm neonates (60 in the control group and 58 in the intervention group) with a gestational age of <32 weeks was recruited. The result showed that the admission temperature in the NICU was significantly higher in the intervention group than in the control group [36.4°C (0.58) vs 36.0°C (0.65) p=0.001]. The incidence of hypothermia (temperatures <36.5°C) was significantly lower in the intervention group (48.2 vs 73.3%, p=0.008).

Conclusions: The study demonstrates that the thermal care protocol significantly improves the temperature of preterm infants after delivery and admission to the neonatal intensive care unit.

The Effects of Adequate Dietary Intake and Sodium Intake on Sleep Duration and Quality of Pregnant Women

MWK SUEN,¹ KTS TUNG,¹ RS WONG,² P IP¹

¹Department of Paediatrics and Adolescent Medicine, The University of Hong Kong; ²Department of Special Education and Counselling, Faculty of Education and Human Development, The Education University of Hong Kong, Hong Kong SAR, China

Background: Poor sleep quality during pregnancy can lead to adverse maternal and offspring's health outcomes. Household income is often associated with sleep quality, but dietary factors can also interfere with this association.

Purpose: To investigate the association between dietary adequacy and sleep quality among pregnant women.

Methods: This study recruited 500 pregnant women at 25 to 35 weeks gestation from the antenatal clinic of local public hospitals. The Pittsburgh Sleep Quality Index (PSQI) and the electronic version of the Food Frequency Questionnaire (eFFQ) were administered. Adequate dietary intake was assessed by comparing the daily serving of food groups to local guidelines, and sodium intake was represented by the Diet Quality Index-International (DQI-I) moderation score.

Findings: Sleep duration significantly differed based on the number of daily serving recommendations for food groups met ($F(3,493)=3.857, p=0.010$). After adjusting for participant's age at enrolment and number of pregnancy weeks, higher monthly household income was associated with lower overall PSQI sleep quality score ($\beta=-0.10, p=0.029$). The mediation analysis with further adjustment for adherence to a balanced diet showed that DQI-I moderation sodium score accounted for a small yet significant portion of this association ($\beta=-0.01, 95\%CI [-0.03, -0.001]$).

Conclusions: Household income is associated with sleep quality, partially due to the impact of food choices and sodium intake. Adequate dietary intake can interfere with sleep duration and counteract this association. Findings indicate the importance of a balanced diet with limited sodium intake on sleep quality during pregnancy to promote offspring's health.

Efficacy of Buccal Vitamin D3 Replacement in Children with Short Gut Syndrome

WYS POON,¹ F LAI,² YL TUNG,¹ SWG PANG,¹ TYS LUI,¹ MSR WONG¹

¹Department of Paediatrics and Adolescent Medicine; ²Department of Pharmacy, Hong Kong Children's Hospital, Hong Kong SAR, China

Introduction: Children with intestinal failure are at high risk of vitamin D deficiency (VDD) due to prematurity, inadequate oral intake, malabsorption and parenteral nutrition-associated liver disease. Enteral vitamin D replacement may not be effective due to underlying decreased absorptive capacity of the gut. On the other hand, vitamin D supplement via buccal spray, a method that primarily bypass the gastrointestinal absorption route, may potentially be useful in improving the vitamin D status of these children.

Purpose: To examine whether buccal vitamin D replacement is effective in children with short gut syndrome and VDD.

Methods: A retrospective review of children with short gut syndrome and VDD who received buccal vitamin D replacement from 2022 to 2023 in Hong Kong Children's Hospital was performed. Clinical demographics, serum vitamin D levels prior to treatment and at a minimum interval of 3 months after treatment was recorded. VDD was defined as serum vitamin D level <50 nmol/L and dosage of replacement was decided by a gastroenterologist or endocrinologist.

Results: Seven patients were identified (short gut syndrome=6; protein losing enteropathy=1) and their serum vitamin D level prior to treatment was 38.7±9.4 nmol/L. Following treatment of an average of 6 months, 57.1% were still VDD. The mean change in vitamin D concentration was 11.6 nmol/L, with a variable effect ranging from a reduction of 9 nmol/L in 3 months to a maximal increase of 52 nmol/L in 6 months. Treatment was well tolerated with no reported side effects.

Conclusion: This case series demonstrated variable efficacy of buccal vitamin D replacement in children with short gut syndrome. In those who did not respond to both oral or buccal administration, alternative route e.g. intramuscular preparations have to be considered to prevent development of long-term sequelae from VDD.

Neonatal Nasopharyngeal Teratoma with Cleft Palate: The Long Term Sequelae

PMY TANG, B TSUI, EKW CHAN, NSY CHAO, KH LEE
Hong Kong Children's Hospital, Hong Kong SAR, China

Introduction: Congenital nasopharyngeal teratoma is an uncommon tumour. After the initial management of airway obstruction and tumour excision, data on the surgical management options on the long term sequelae is scanty. Limited by the anatomy and the amount of residual soft tissue, the surgical repair of the cleft palate can be challenging.

Methods: We report a case of a boy with congenital nasopharyngeal teratoma and cleft palate. The different surgical procedures performed and the long term outcome were discussed.

Results: A boy with unremarkable antenatal history was born with elective caesarean section at full term. At birth, he was found to have a cleft palate with a soft tissue mass arising from the right para-pharyngeal and right soft palate region. Although his respiratory distress could be managed with oropharyngeal airway initially, elective tracheostomy was carried out on day 7 of life for persistent respiratory distress. Subsequent CT imaging showed a 4cm heterogenous mass at the right parapharyngeal and infratemporal fossa region, extending caudally to the level of the tip of the epiglottis. Elective excision of the mass was performed at nine-month-old, the skull base defect was repaired with right palatal flap. The pathology of the lesion confirmed to be a congenital mature teratoma. Elective repair of the cleft palate was performed at sixteen-month-old. The cleft palate was surgically repaired with von Langenbeck palatoplasty with intra-velor veloplasty, and his tracheostomy was successfully decannulated one month after the palatoplasty. Serial clinical examination showed significant hypernasal speech with wide port and short palate. In view of his clinical history, a left sided buccal myomucosal flap, in the hope of lengthening the soft palate without disturbing the scarred posterior pharyngeal region, was performed at six-year-old. As there was no significant improvement of his velopharyngeal insufficiency, a superior based posterior pharyngeal flap operation was performed at twelve-year-old. Post operative interval assessment showed marked improvement in his speech with significant reduction in hypernasality, although residual hoarse voice was noted. He continued to suffer from significant right hearing loss and long term follow up is scheduled.

Conclusions: The surgical repair of cleft palate could be complicated with a lack of available soft tissue, distorted anatomy and significant post operative scarring, when a concurrent nasopharyngeal teratoma had been excised. Long term follow-up with regular speech assessment is essential in order to produce the best outcome for the patient.

Multidisciplinary Management of Patients with Craniofacial Anomalies and Cleft Palates

PMY TANG, B TSUI, EKW CHAN, NSY CHAO, KH LEE

Hong Kong Children's Hospital, Hong Kong SAR, China

Introduction: Patients with complex craniofacial anomalies would often present with challenging airway and feeding issues shortly after birth. A subset of these patients might also have concomitant cleft palate deformity. Multidisciplinary care is essential in the comprehensive management for these patients.

Method: We retrospectively review two patients with complex craniofacial anomalies and cleft palates. Their management pathways and short term outcome post palatoplasty are reported.

Results: Case 1: A baby boy was born at 34 week-gestation with unremarkable antenatal history. At birth, he was found to have micrognathia, cleft palate, bilateral microtia and left eye ptosis. He was suspected to be suffering from a complex craniofacial anomaly. Tracheostomy, mandibular distraction, fundoplication with gastrostomy were performed in the first year of life. Elective palatoplasty was performed when he was four-year-old with the tracheostomy in situ. Post op recovery was uneventful and he was successfully decannulated to room air six months later. Case 2: A baby boy was born full term with unremarkable antenatal history. At birth, he was found to have down-slanting eyes, maxillary and mandibular hypoplasia, bilateral microtia and absent lower eyelashes. He was subsequently genetically confirmed to be suffering from *TCOF1* gene – related Treacher Collins Syndrome. Tracheostomy, mandibular distraction, fundoplication with gastrostomy were performed in the first year of life. Elective palatoplasty was performed when he was two-year-old after tracheostomy decannulation. Post op recovery was complicated with difficult extubation, requiring the temporary use of nasopharyngeal airway. He was eventually extubated to room air on day 7 post palatoplasty.

Conclusions: Patients with complex craniofacial anomalies and cleft palate often require early multidisciplinary collaborative management. The optimal timing for the surgical repair of their cleft palates would require balancing the risk of airway compromise and the facilitation of early oral and speech training. The clinical presentations of two different patients with complex craniofacial anomalies and cleft palates were discussed, close collaboration with different specialties is essential for the timely surgical repair of the cleft palates.

Impact of Dog-Assisted Therapeutic Intervention on Children with Autism Spectrum Disorder in Hong Kong, China: Case Studies

A TSO, C CHEN, JPY WONG, H TINSLEY, CHY CHUNG, RKW LUK, WHS WONG

Department of Paediatrics and Adolescent Medicine, Queen Mary Hospital, LKS Faculty of Medicine, The University of Hong Kong, Hong Kong SAR, China

Background: Recent research indicates that animal-assisted intervention (AAI) holds promise as a treatment method for children with autism spectrum disorder (ASD). However, there is limited understanding of how dog-assisted therapeutic (DAT) intervention affects multi-dimensional capabilities and overall well-being in children with ASD in Hong Kong.

Purpose: This study aims to evaluate the effectiveness of DAT in enhancing communication, social-emotional development, and overall well-being in children with ASD in Hong Kong.

Methods: Four children aged between 9 and 13 years participated in a structured 8-session AAT dog training program. Pre- and post-intervention assessments of language ability, behaviour, and human-dog bonding were conducted by an experienced special education teacher involved in the training. The Paediatric Quality of Life Inventory scale was used to evaluate parents' perceptions of their child's health-related quality of life. Social-emotional development was measured using the Strengths and Difficulties Questionnaire, completed by the child's teacher.

Findings: All participants showed significant improvement in language, behaviour, human-dog interaction, psychosocial health (pre-mean vs. post-mean: 51.2 vs. 68.8) and overall well-being (pre-mean vs. post-mean: 58.7 vs. 77.4). Evidence of improvement in children's social-emotional development was observed through reduced total difficulties (pre-mean vs. post-mean:

21.5 vs. 13.3) and positive changes in several subscale classifications, such as transitions from "abnormal → normal/borderline".

Conclusions: This study suggests that DAT intervention is a promising approach for children with ASD in Hong Kong, contributing to their mental health and overall well-being. Further research is needed to generalize the results to a larger population.

Home TPN Education Program for the Short Gut Syndrome Baby in NICU Can Reduce Length of Hospitalisation and Release the Pressure of Occupied Hospital Beds

KY LO,¹ WF LEE,¹ PK WONG,¹ HY SO²

¹Hong Kong Children's Hospital; ²Kowloon Central Cluster, Hospital Authority, Hong Kong SAR, China

Background: Neonatal Intensive care unit (NICU) of Hong Kong Children's Hospital is mainly handling paediatric surgical cases. Most surgical cases are necrotising enterocolitis (NEC). Short gut syndrome is one of the complications. It may prolong hospitalisation period due to milk intolerance, and long term intravenous total parental nutrition (TPN). Home TPN education for parents is proposed for the stable cases to solve this problem.

Purpose: To release the pressure of full occupied hospital beds. To update the staff's knowledge on parent's TPN education. To empower parents to care baby and enrich their knowledge in caring baby at home.

Method: Assigned 2 APN as case manager, case manager coordinated and trained case nurse to teach parents, case nurse demonstrated TPN administration, parents need to return demonstration. Standardise teaching materials. Prepare purchasing list of consumables to parents. Provide resources for rent home equipment.

Findings: Total 5 cases educated home TPN in NICU. Four cases are NEC with short gut syndrome. 1 case is Aganglionosis. Total education days for parents on TPN administrations are from 1 to 33 days. Average 15.4 days. Total length of stay of these five cases are from 185 to 265 days, average 224.4 days.

Conclusions: NICU can transfer long term TPN cases to Mixed Specialty Ward after complete education, parents can continue education by rooming in and caring baby with nurse support, and trial to use home equipment in ward. Patients can reduce length of stay, NICU will have vacancies to admit critical case for operation.

Factors Associated with Psychosocial Difficulties of Preschoolers in Hong Kong, China

XQ ZHANG, C CHEN, KM YIP, HK SO, WHS WONG, P IP

Department of Paediatrics and Adolescent Medicine, School of Clinical Medicine, The University of Hong Kong, Hong Kong SAR, China

Background: Numerous studies have explored psychosocial difficulties in school-aged children, but research on factors related to psychosocial difficulties in preschoolers, a vulnerable group, remains limited.

Purpose: This study seeks to investigate factors associated with psychosocial difficulties in preschoolers.

Methods: A territory-wide, school-based study was conducted between 2020 and 2022, involving 1930 preschoolers (mean (SD) age: 4.39 (1.14) years, 51.6% female, 48.4% male). Their parents completed a questionnaire encompassing their children's wake-up and bedtime, sleep latency, electronic device usage, parent-child interactions, and psychosocial difficulties. Linear regression analyses were performed to explore factors associated with psychosocial difficulties.

Findings: In our study cohort, nearly half (49.5%) of preschoolers failed to meet the recommended sleep duration set by the National Sleep Foundation, which defines short sleep duration as less than 10 hours for preschoolers, and only 18.7% of our cohort complied with the latest AAP media use guidelines of no more than an hour of screen time per day. Linear regression analyses indicated that psychosocial difficulties were associated with lower parent-child interaction scores ($\beta=-0.183$, $p<0.001$), shorter sleep duration ($\beta=-0.061$, $p=0.006$), having sleep latency more than 20 minutes ($\beta=0.159$, $p<0.001$), and longer screen time for entertainment ($\beta=0.050$, $p=0.029$).

Conclusions: Our findings highlight the importance of promoting parent-child recreation and learning activities, healthy sleep habits, and limiting entertainment screen time for preschoolers to mitigate psychosocial difficulties.