Sishu Paripalan

Bulletin of Kanchi Kamakoti CHILDS Trust Hospital

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Editors: Dr K G Ravikumar Dr Venkateswari

From the Medical Directors Desk

Our Lab is now NABL Accredited.

Hospital renovations... in Full swing....for better facilities...

Hello Friends,

Welcome to the June edition of Sishu Paripalan. We had a busy quarter with 4341 Inpatients and 31090 Outpatients. The XXV Dr. M.S. Ramakrishnan Memorial Endowment Oration and Intensive clinical training for postgraduates was held in May 2016. *Our hospital Lab now has NABL accreditation.* This edition of Sishu Paripalan features articles written by our Senior Consultants highlighting some interesting patients we have come across. We hope you will enjoy reading them.

Dr B Ramachandran
MEDICAL DIRECTOR

Inside this issue:

Events

The **XXV Dr.MSR Memorial Endowment Oration** was held on 1-5-16 at Hotel Residency Towers. The Orator was Dr. Sanjay Patole, Professor, Centre for Neonatal Research and Education, University of Western Australia, Perth and the topic for Oration was "Necrotizing Enterocolitis – What's New". Dr. Pramod Jog, President IAP, was the Chief Guest. This year's CME was on interesting topics in Neonatology. The CME was well attended by both academicians and practitioners from all over the country.

As part of the Dr.MSR Memorial Endowment Oration, a two day clinical training program for Pediatric Postgraduates and another training cum workshop for Neonatology postgraduates was held on April 29th and 30th. The program was well attended by postgraduates. from all over the country.

Dr.K.Mathangi Ramakrishnan, Chairperson, CHILDS Trust Medical Research Foundation, was felicitated by the Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER) for her contribution and services for burns patients. She delivered the JIPMER SUSRATHA Oration in Plastic Surgery on 8-3-16.

Our hospital DNB Pediatrics postgraduates had excellent results in the final National board examinations in 2015 (12 candidates appeared and all passed). Dr. Sameera Rao received the award for the Best Outgoing student.

Dr N. Suresh and Dr. R.Ganesh, Junior Consultants Pediatrician, were awarded the **"Degree of Doctor of Philosophy (Ph.D.) "** by The Tamil Nadu Dr.MGR Medical University. Congratulations to them.

<u>Abstracts accepted in International Conferences</u>

Congratulations to Dr. Vaishnavi Chandramohan, Registrar in Pediatric Infectious Disease, PICU Team and Dr Janani Sankar, Senior consultant for their presentations in International Conferences.

Dr.N.Suresh, Junior Consultant Pediatrician, won the **"V.RAJU AWARD"** for the Research Paper titled "Role of Th1, Th2, Th17 Cytokines in the prediction of Post RSV Bronchiolitis Wheeze" **at ICAAICON – 2015** under the auspices of Indian College of Allergy, Asthma and Applied Immunology, held from 28th – 31st Jan.2016 at Chennai.

Dr.Prathima, DNB Postgraduate, was awarded the first prize for her paper on 'Errors in use and maintenance of MDI in children – an observational study' at the IAP Pulmonology Update on 3-4-16.

<u>Inauguration of New Lab facilities:</u> The completely renovated state-of-the-art Lab facilities in a purpose-built 2800 sq.ft area in the basement were inaugurated on 19-01-2016. This has an all-in-one facility for Haematology, Biochemistry, Microbiology and Pathology investigations and recently obtained NABL accreditation. It also houses the only muscle tissue processing facility, including immune-histochemistry in Tamilnadu. Seen in the photo (from L to R) are Dr B.Ramachandran, Mr S.L.Chitale, Dr Mathangi Ramakrishnan, Mr N. Sankar and Mr Chandramohan.

Events

Hospital Renovation

Newly Renovated Operating theatre:

Our Operation theatres have all been renovated to a modern high standard facility according to NABH requirement.

It has been redesigned a modular architecture with laminar airflow installed to achieve required air-exchanges.

The sterile and non-sterile areas have been meticulously separated to avoid cross-infection.

We have installed new lighting systems, tables and other equipment.

Newly renovated Sixth floor and Fourth floor: These floors have been renovated to the modern times and according to the high patient expectations. They have been made patient and family friendly with maintenance of hygiene a primary goal.

Mrs. K S Varalakshmi has joined our team as General Manager of Administration from April 2016. She has over 30 years experience in hospital management and we welcome her.

The hospital administration apologises for inconvenience caused during extensive hospital renovations to make it the best children hospital in the city and the state.

Thank you for being patient while we upgrade the hospital to a new level.

On going renovations: We are currently renovating the Ground floor, the first floor (OPD + Auditorium) and the NICU. We are also building 4 new Isolation rooms for the PICU and a new facility for performing Bone Marrow Transplantation.

IT Systems: We have installed new hospital information system (Akhil systems), Electronic medical system and discharge summary transcription system in our hospital. This has stream-lined patient registrations, billing, out-patient visits, lab investigations and Radiology investigations. A new PACS system for viewing digital radiological images from any computer has also been commissioned.

New supportive Facilities: As part of our major hospital renovation efforts, we have installed new DG sets, A/C Plants, Rain water harvesting, Power Transformer etc.

Improved Student facilities: we now subscribe to Clinicalkey.com and UpToDate.com, in order to provide better educational facilities for our students.

ClinicalKey

UpToDate
Providing Answers to Clinical Questions

New Support infrastructure

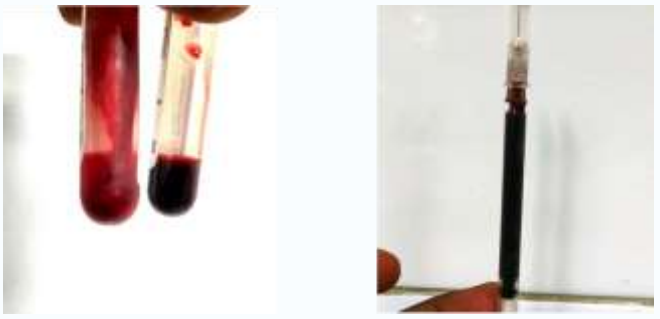
DRUG INDUCED METHEMOGLOBINEMIA

Dr. Raviteja, Dr. Radhika, Dr. Lakshmi, Emergency department, KKCTH.

A 1year 3 months old, female toddler, previously well and developmentally normal, presented with irritable cry and altered behaviour for last 3 days. There was no history of fever, foreign body aspiration, respiratory distress, seizures, envenomation or trauma. After repeated probing we found out that the father was on Dapsone for last 1 year and he gave history of bluish discolouratuion of lips noticed on second day of illness. On examination she was irritable, had minimal tachypnea, central cyanosis was not obvious and her peripheries were not cyanosed. Oxygen saturation was 88% in room air, not improving with 100% oxygen supplementation. Cardiovascular examination revealed tachycardia without any murmur. Respiratory examination was normal except for minimal tachypnea. Abdominal and neurological examination were normal.

With the above presentation and history of drug(dapsone) availability in family, drug induced methemoglobinemia was considered and confirmed with Co oximetry. Blood sample was chocolate brown in color and remained dark even on exposure to environment. Co oximetry revealed metHb - 21% (normal level 0.5-1.5%) and normal PaO2.

After confirming drug induced methemoglobinemia, she was given IV Methylene blue 1mg/kg diluted in 0.9 NS, as infusion over 10 min. She responded well to IV Methylene blue, as evidenced by



Chocolate brown coloured blood sample (right) and ABG sample

normalisation of sensorium and oxygen saturation. Her repeat methemoglobin level dropped from 21% to 9%. She was kept under observation as dapsone is a long acting drug with half-life of 10-50hrs (Avg. 30hrs) and to monitor for secondary hemolysis.

Inj. Methylene blue (1ml=10mg).

DISCUSSION:

Recognizing hypoxia as a cause of irritability and a high index of suspicion of poisoning in a child when the clinical features do not fit into any particular diagnosis is important. Irritability also causes difficulty in obtaining vitals and performing a clinical assessment and central cyanosis may not be striking in a child with dark skin.

Methemoglobin is a derivative of normal hemoglobin in which the iron of heme complex is oxidized to ferric form. Methemoglobin does not transport oxygen and also causes leftward shift of the O2 dissociation curve. Methemoglobin is reduced primarily through an enzyme system that involves cytochrome b5 and NADH cytochrome b5 reductase. The symptoms of methemoglobinemia depend on the concentration of methemoglobin. Normal level of methemoglobin is less than 1%. Cyanosis occurs with a concentration of 1.5g/dl of methemoglobin when compared with 5g/dl of deoxygenated hemoglobin.

Two very important clues in diagnosing this disorder include central cyanosis that does not improve with administration of supplemental oxygen and blood that appears darker than normal. Blood that is dark in color due to cardiopulmonary disease turns red on exposure to oxygen, whereas blood with methemoglobin does not. In a patient with methemoglobinemia, the severity of cyanosis does not correspond to the pulse oximetry reading. Co-oximetry is the most accurate method to measure methemoglobin.

The first line antidote is IV Methylene blue. Methylene blue accelerates the enzymatic reduction of methemoglobin by NADPH methemoglobin reductase and also reduces to leukomethylene blue, which in turn produces non enzymatic reduction of methemoglobin. The total dose should not exceed 7mg/kg, as methylene blue acts as an oxidant at higher doses and should be avoided in children with G6PD deficiency as it may induce hemolysis. Hyperbaric oxygen and exchange transfusion should be considered for children who are not responding to methylene blue.

METHEMOGLOBIN LEVEL	CLINICAL FEATURES	TREATMENT
Less than 10%	Asymptomatic	Observation and no treatment required.
10-30%	Cyanosis	Treat if symptomatic
30-50%	Dyspnoea, tachycardia, headache & irritability	IV Methylene blue 1-2mg/kg, diluted in 0.9% NS @ 1mg/ml concentration given over 5-10min. Repeated every30-60min (max 7mg/kg) till methemoglobin level <30% or
50-70%	Stupor, acidosis, seizures and arrythmias.	Methylene blue as above, exchange transfusion or hyperbaric oxygen
More than 70%	Coma, death	Methylene blue, exchange transfusion or hyperbaric oxygen

Hypothyroidism, precocious puberty and ovarian mass- A known but uncommon association.

(An Interesting case in Pediatric Endocrinology by Dr Malleswari)

8 year old girl was brought with complaints of vaginal bleeding for 5 days and short stature. There was no history of local trauma, vaginal discharge, urinary symptoms or any other bleeds. There was no history of any headache, vomiting, seizures, visual disturbances, head trauma. Child was not on any hormonal preparations. She was second born to second degree consanguinous marriage with a normal perinatal period. She was going to school. There was no family history of short stature or early onset of menarche or thyroid disorders.

On examination, she was listless, disinterested. She had coarse facies, flat nasal bridge and a short neck. There were no midline neck swellings or neurocutaneous markers. Her weight was on the third centile. Height was well below the third centile. Upper segment: lower segment ratio corresponded to 3years. There were no secondary sexual characters. Tanner staging was prepubertal. Genitalia was normal. Per abdomen examination revealed a non tender, diffuse, mobile, 5 x5 cm mass in the right iliac fossa. There were no other swellings. Hearing and neurological examination were normal.

Investigation reavealed mild anemia. Ultrasound abdomen showed bilateral enlarged cystic ovaries, right larger than left. TSH was very high(622) with almost undetectable free t4 levels (<0.08). child was further investigated and found to have agenesis of thyroid on ultrasound. She was started on thyroxine. At review within a short time, TSH returned to normal levels and the ovarian size was regressing clinically.

The association in young females of long-standing primary hypothyroidism, isosexual precocious, pseudopuberty and multicystic enlarged ovaries was first described in 1960 by Van Wyk and Grumbach. This is charcterised by premature Breast development,follicular ovarian cysts without leutinization and premature onset of menstruation, which may occur in the absence of breast development. Characteristically, there is absence of pubic or axillary hair and delayed bone age.Other features of hypothyroidism may be present. TSH are markedly elevated>500 µU/mL, and plasma levels of prolactin are mildly elevated. serum FSH is low and LH is undetectable.

The hypothalamic-pituitary-thyroid axis (HPT) and the hypothalamic-pituitary-ovarian axis (HPO) are physiologically related and specific thyroid hormone receptors at the ovarian level might regulate reproductive function, as well as the influence of estrogens exists at the higher levels of the HPT axis. Two theories have been proposed in this regard. One is, the massively elevated TSH interacts with the FSH receptor inducing FSH-like effects in the absence of LH effects on the gonads(specificity spill over). The other theory is that elevated prolactin levels increase the level of oestrogen by upregulation of FSH receptors. In total, they induce an incomplete form of iso-sexual gonadotropin-dependent precocious puberty.

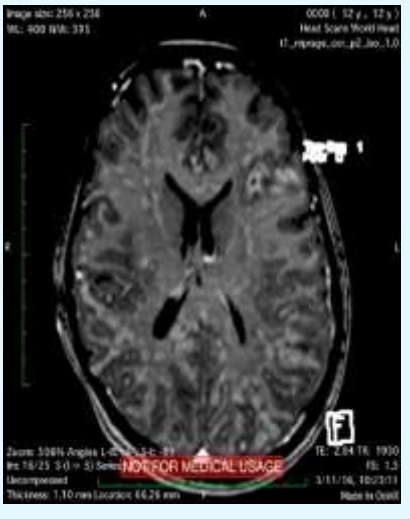
Thyroxine replacement leads to reversal of all the clinical symptoms within few months in these children. Rapid bone age advancement and possible progression to central puberty with thyroid hormone replacement may occur, a complication that justifies delaying puberty with GnRH analogs.

Though hypothyroidism is frequently associated with delayed onset of puberty, chronic and untreated hypothyroidism may rarely present with precocious puberty which may be associated with ovarian mass. Failure to recognize the etiology may result in unnecessary investigations and sometimes inadvertent surgical removal of ovarian masses. Symptoms are reversible with thyroxine replacement.

NEUROMELIODOSIS IN AN ADOLESCENT GIRL

(Dr Sajith Kesavan, Dr K Ravikumar, Dr.Mohammed Mohideen)
(DEPARTMENT OF PEDIATRIC INTENSIVE CARE)

11 years old girl came to us with prolonged fever, gluteal abscess and ascending paralysis. Her CSF showed lymphocytic pleiocytosis (WBC – 248 cells/cumm, 92% lymphocytes), mildly elevated protein (69 mg/dl) and normal glucose. **MRI** revealed numerous small, ring enhancing lesions in bilateral cerebral hemispheres, thalami, midbrain and cerebellum. Detailed evaluation including blood, urine, CSF and bone marrow were not contributory.



Brain biopsy was done after right frontal craniotomy without any complications. Histopathology showed chronic granulomatous inflammation. Bacterial culture showed the growth of Burkholderia pseudomallei sensitive to ceftazidime. A definitive diagnosis of Neuro-Meliodosis was made. She made a good recovery after appropriate antibiotics.

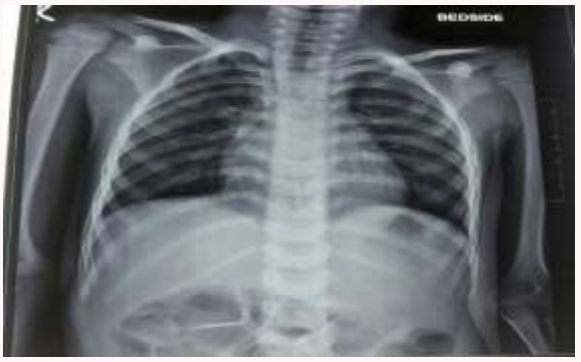
Neuromeliodosis is very rare with less than 50 cases reported over the last 30 years. Neurologic melioidosis can present as monoparesis, paraparesis, cranial nerve palsies and can mimic as Guillain-Barre syndrome.

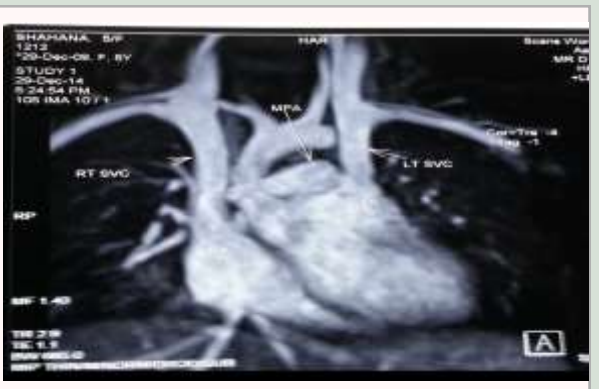
Our case highlights the utility of brain biopsy in isolating the infectious organism despite repeated negative cultures from blood and CSF.

AN UNUSUAL CAUSE FOR CHRONIC HYPOXIA IN A CHILD WITH DYSMORPHISM

(DR BALASUBRAMANIAN UNIT)

A 5 year old girl child with past history of hospitalisation for LRI, was presently admitted for viral associated wheeze. Her SpO2 was 85 to 90% in room air. ABG confirmed hypoxemia. Hypoxia persisted despite treatment of bronchospasm. Cardiovascular examination was normal. There was grade 2 clubbing pointing towards a chronic etiology. Anthropometry showed weight less than 5th centile and height between 25-50th centile. She had a left pre-auricular tag. Eye examination revealed coloboma of left eye. Chest x-ray showed normal lung fields & segmentation defects of thoracic vertebra. ECHO was normal. Genetic opinion was obtained and a diagnosis of OCULO-AURICULO-VERTEBRAL-SPECTRUM disorder (OAVS) was made. Since the respiratory and cardiovascular systems were normal clinically and ECHO was normal, a respiratory and intracardiac cause of hypoxia was ruled out clinically. The possibility of right to left shunting of blood was considered. MRI thorax with angiography revealed persistent LEFT SUPERIOR VENA CAVA draining into left atrium.





DISCUSSION:

OCULO-AURICULO-VERTEBRAL SPECTRUM (OAVS) is a disorder of craniofacial morphogenesis, with a prevalence reported of up to 1/3500 births. It includes a group of malformations primarily involving structures derived from the first and second pharyngeal arches, in particular the ear, mouth and mandible. Craniofacial abnormalities include asymmetric ear anomalies (preauricular tags, microtia) with or without hearing loss (conductive and/or sensorineural), hemifacial microsomia resulting in facial asymmetry; orofacial clefts; ocular defects (epibulbar dermoids, coloboma) vertebral abnormalities. A PERSISTENT LEFT SUPERIOR VENA CAVA is the most common congenital anomaly of the systemic veins of thorax. Estimated prevalence is 0.3% to 2% in the general population and 4-10% in patients with congenital heart disease .The most common (90%) form of persistent left superior vena cava drains through coronary sinus into right atrium. This does not cause any symptoms. Rarely 10% of persistent left superior vena cava drain into left atrium, typically through an unroofed coronary sinus and very seldom directly into right atrium or through pulmonary vein. This right to left shunting leads to desaturation of blood. Complications of right to left shunt are cyanosis cerebral abscess, cerebral embolism. Percutaneous surgical closure of left SVC is usually done.

World Hand Hygiene day celebrations on 4th and 5th May 2016

Children participating in Handhygiene campaign….

The transformers…Employees demonstrating Hand Hygiene ….

Hospital Renovation Photos

Our New Renovated Hospital Floors. Child Friendly corridors and rooms...

Before...

After...

Renovated New Laboratory facility with state-of-the-art equipment for best Lab Results

Renovated New Operation Theatre with Fine equipment

Telemedicine and Community Health Services

Health check up for 1085 children was done through our Mahaswami Rural health projects from Jan to Apr 2016. 434 children had come for review and 10 children were referred for further evaluation to Kanchi Kamakoti CHILDS Trust Hospital.

How You Can Help Us.

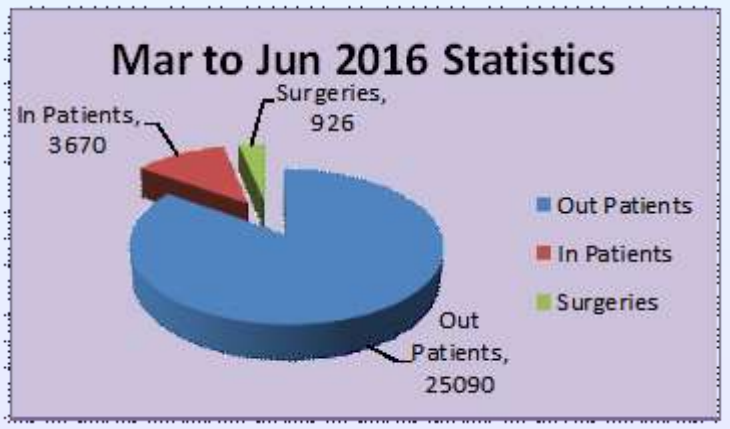
Please donate as a tribute and on Special occasions, Festivals, Birthdays, Wedding Anniversaries as a present in memory of a loved one or provide support in the form of bequest.

For contribution details, contact:
Mr. Srinivasan
General Manager Finance
Ph: 91-44-4200 1800 ext 555

Donate any amount to:

The CHILDS Trust
Medical Research Foundation.

Donations are now 175 % tax exempt as per Section 35 (I) (II) of the Income Tax Act.



Kanchi Kamakoti **CHILDS** (CHILDS is an acronym that stands for 'Children Health Institute, Laboratory and Diagnostic Services') Trust Hospital is the foremost affordable children's medical care center in Chennai started in April 27, 1978 which was the International Year of the Child, by the late Dr. M.S. Ramakrishnan, an eminent pediatric surgeon.

The primary motive is to ensure quality health care service at affordable cost, across the gamut of Pediatric disciplines so that a child can be cared for under one roof.

The hospital has ISO certification & NABL accreditation and is pursuing NABH accreditation. Today, this most prestigious pediatric health care institute is a shining example of human spirit.

Kanchi Kamakoti
CHILDS Trust Hospital

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