Pedia Companion

Volume 2 | Issue 9 | 2023

Pedia Companion Newsletter

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Dear Doctor,
Greetings from Micro Labs Limited. We are happy to bring you "PEDIA COMPANION" which contain latest and interesting news in the field of Paediatrics.

This issue contains:

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A study on the effects of fungal infection on preterm newborns' neuro-developmental outcomes

Introduction:

Invasive fungal infections (IFI) are associated with significant mortality and morbidity in critically ill individuals.[1] Although invasive fungal infection (IFI) has been linked to considerable morbidity and mortality in preterm newborns, population-based research on long-term neurodevelopmental consequences is lacking.[2] The aim of this study was to compare the long-term neurodevelopmental outcomes of preterm children with IFI, non-fungal infections (NFI), and no infections to population-based incidence trends and to death, short-term in-hospital morbidity, and outcomes.

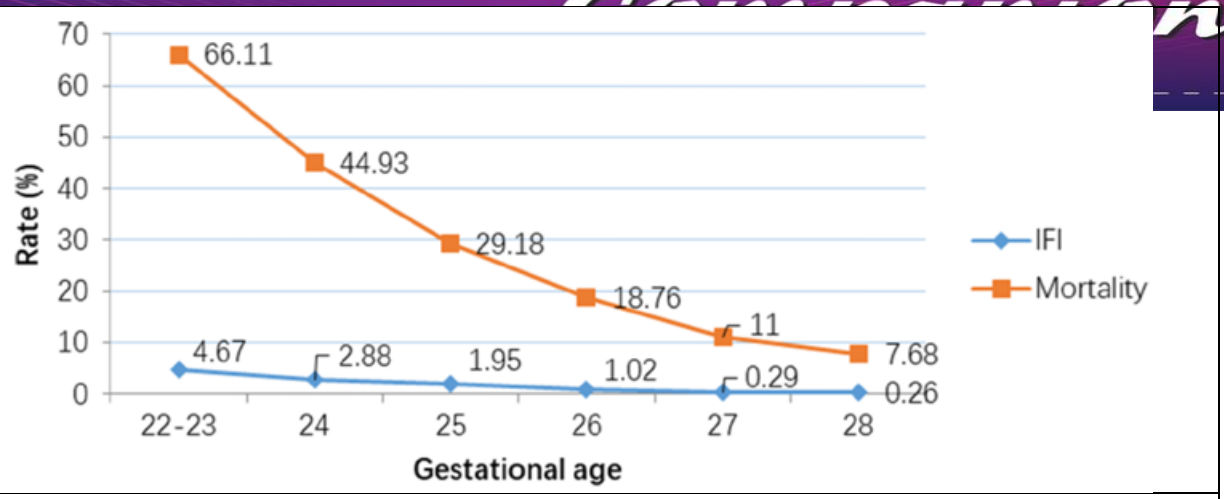
In comparison to preterm infants with non-invasive or no infections, those with invasive fungal infections had a much greater rate of mortality and poor neurodevelopmental outcomes.

Methods:

Researchers carried out a retrospective cohort study on 8,408 infants who were born at or before 29 weeks of gestation (GA), admitted to NICUs, and checked in with at 18–30 months of corrected age (CA). In 3 groups of newborns (IFI, NFI, and no infections), researchers compared mortality, long-term neurodevelopmental outcomes, and short-term in-hospital morbidity.

Results:

IFI occurred in 1.3% of cases, non-IFI in 26.9%, and no infections in 71.7% of cases. IFI incidence ranged from 0.93% to 1.94% during the course of the study period, with no discernible increase in incidence. Higher gestational age infants had a significantly ($p<0.01$) lower chance of having IFI. Significant neurodevelopmental impairment (sNDI) was present in 44.26 percent, 21.63%, and 14.84 percent of new-borns with IFI, NFI, and no infections, whereas mortality was 50%, 25.35%, and 22.25% respectively. Infants with IFI had a significantly greater chance of sNDI compared to NFI (aOR: 2.19; 95% CI: 1.23, 3.91) or no infections (aOR: 2.97; 95% CI: 1.55, 5.71), as well as higher chances of mortality compared to NFI (aOR: 1.55; 95% CI: 1.07, 2.26) or no infections (aOR: 1.45; 95% CI: 0.97, 2.17).



Decreasing rates of Invasive Fungal Infection(IFI)and mortality with increasing gestational age.(Armitage trend test:p<0.0001).

Discussion:

This is the largest and first population-based study of preterm infants delivered at less than 29 weeks GA with fungal infections admitted to all tertiary level NICUs in, looking at neurodevelopmental outcomes at 18 to 30 months. Previous research generally compared IFI with non-fungal infections (combining no infection and non-IFI) or solely with no-infection controls, and they came from smaller non-population-based cohorts.[2] The study's IFI incidence of 1.3% is comparable to earlier study conducted by Ting et al which reported 1.4%.[3]

Conclusion:

Compared to preterm infants with non-fungal infections and new-borns without infections, those with fungal infections have a significantly greater incidence of mortality and poor neurodevelopmental outcomes, and there is an ordinal association of decreasing incidence across the three groups.

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Study on the pathophysiology and prognosis of childhood primary immune thrombocytopenia and the roles of interleukin 4 (IL4) and interleukin 6 (IL6)

Introduction:

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An autoimmune condition known as primary immune thrombocytopenia (ITP) is characterised by a low platelet count (<100 × 10^9/L) and a higher risk of bleeding. ITP is an uncommon cause of thrombocytopenia in both children and adults that is brought on by decreased platelet production and antibody-mediated platelet destruction.[1] The loss of immune tolerance is a hallmark of ITP. Levels of cytokines, which can aid in predicting the course of ITP, are used to assess cellular immune impairment.[2] The purpose of this study was to measure the levels of IL4 and IL6 in children with TP and analyse their contribution to the pathophysiology and prognosis of this condition.

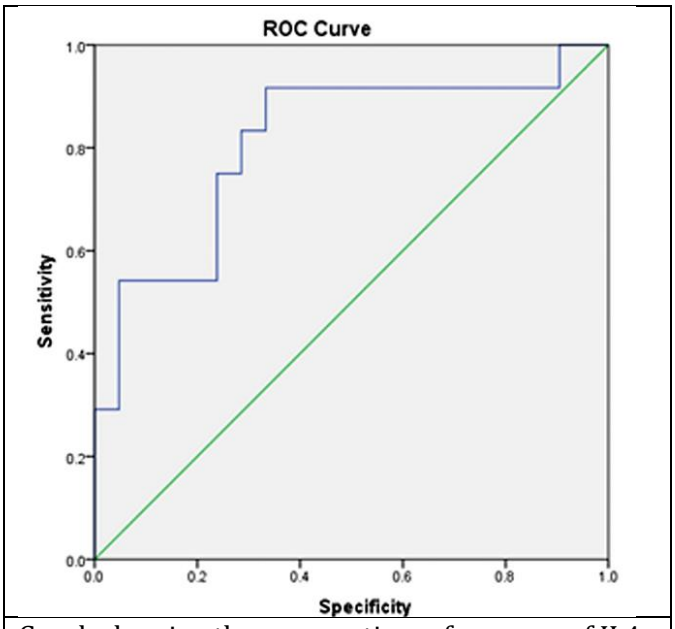
IL-4 appears to be a good indicator of treatment response.

Methods:

This was a prospective cohort study involving sixty children was conducted, including fifteen children with newly diagnosed ITP, 15 children with persistent ITP, 15 children with chronic ITP, and 15 children who were healthy controls. Using a Human IL-4 and IL-6 ELISA kit, serum IL-4 and IL-6 levels were assessed in patients and healthy controls.

Results:

When compared to patients with chronic ITP and healthy controls, patients with newly diagnosed and persistent ITP exhibited significantly greater levels of IL4 and IL6 ($p < 0.001$). For patients with newly diagnosed, persistent, chronic ITP, and healthy controls, respectively, the mean serum levels of IL4 and IL6 were 762.0, 741.0, 364.6, and 436.8 pg/ml and 178.5, 164.4, 57.9, and 88.4 pg/ml, respectively. Patients who achieved remission had serum IL-4 levels that were significantly greater than those who did not benefit from first-line therapy.



Graph showing the prognostic performance of IL4

Discussion:

When compared to patients with persistent and chronic ITP, newly diagnosed ITP patients had the highest platelet counts during the follow-up period, with counts of 247.7 ± 141.6 versus 101.4 ± 87.4 and 143.0 ± 116.1, respectively, with a highly statistically significant difference of $p<0.05$. In a similar manner, Gözmen et al. discovered that the newly diagnosed ITP group's post-treatment platelet count was higher than its pre-treatment platelet counts ($p < 0.00$).[3] On the other hand, according to

Ebeid et al.'s findings, there was no statistically significant difference in platelet count over the course of the follow-up period.[4]

Conclusion:

The development of primary ITP may be influenced by serum levels of IL4 and IL6. A good predictor of treatment response appears to be IL4. The prognostic importance of IL4 should be confirmed by large-scale research so that it can be included to already used prediction scores to enhance clinical prediction.

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Children with Guillain-Barré syndrome in settings with limited resources: clinical characteristics, diagnostic and treatment difficulties, and hospital outcomes

Introduction:

Guillain-Barre syndrome (GBS) is the most common cause of acute paralysis that affect the humans. GBS is thought to be an immune-mediated illness that is caused by an immunological attack on the peripheral nerve system, probably brought on by a recent infection.[1] The clinical course and outcome of GBS, an acute immune-mediated peripheral neuropathy, are extremely uncertain. In situations with few resources, diagnostic and therapeutic issues still exist.[2] This study aimed to explain how children with GBS presented clinically, the difficulties with diagnosis and treatment, and the hospital outcomes.

There is a gap in the diagnosis and treatment of children with GBS, and the disease's mortality rate is higher than what has been reported in other settings.

Methods:

Children under the age of 14 who were admitted Hospital with a diagnosis of GBS had their records retrospectively reviewed. Data on demographics, clinical traits, investigation findings, treatment, and outcomes were collected while reviewing the

medical records of 102 children who met the Brighton Criteria for GBS. To identify factors related to mortality, a logistic regression analysis was conducted.

Results:

The study's participants were 63.7% male and had a mean age of 7.25 ± 3.91 years. The most frequent trigger, an upper respiratory tract infection, was present in 63.8% of cases (48%) and was the antecedent event in 48% of cases. At admission, the lowest point, and discharge from the hospital, the mean Hughes disability score was 4.23±0.54, 4.48±0.71, and 4.03±0.86, respectively. Bulbar palsy was the most prevalent cranial nerve involvement, which was seen in 27.5% of patients. In 57.8% of the subjects, dysautonomia was noted. Only 43 of the 63 patients (68.3%), who required ICU care, were admitted. Similarly, 31 patients (30.4%) required respiratory support but only 24 of them (77.4%) were on mechanical ventilator. No patient had nerve conduction study. Only 5.9% of patients received IVIG. Thirteen patients (12.7%) died of GBS and the presence of respiratory failure was the only determinant of mortality [AOR = 11.40 (95% CI: 1.818, 71.52), p = 0.009].

Discussion:

In this study, researchers documented the hospital outcomes for 102 children with a clinical diagnosis of GBS as well as their clinical features. Males had a higher prevalence of the condition (63.7%), Children are more likely to develop GBS than adults, where the incidence rises linearly with age.[2] According to studies from Finland and Denmark, GBS incidence peaked around two years old.[3,4] The participants' average age (7.25± 3.91 years) in this study is similar with the results of previous studies.[5]

Conclusion:

There is a gap in the diagnosis and treatment of children with GBS, and the disease's death rate is higher than what has been reported in other settings. To improve outcomes, efforts should be made to enhance diagnostic capabilities and establish mechanisms for providing treatment to children with GBS in settings with limited resources.

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A Case Report of Lemierre Syndrome in a Child with Nephrotic Syndrome

Introduction:

Lemierre syndrome (LS) is characterised by oropharyngeal infections that result in anaerobic septicaemia is an uncommon complication of bacterial tonsillitis/pharyngitis and entails spreading the infection into the lateral pharyngeal areas of the neck, which is followed by septic thrombophlebitis of the internal jugular vein(s). In young, healthy patients, it is linked to anaerobic septicemia and mortality.[1] Immunosuppressive drugs are occasionally used to treat nephrotic syndrome; these drugs can cause severe infections without a fever. It is highly uncommon for the two illnesses to co-occur. Here is the first instance of Lemierre syndrome in a eleven years old child with nephrotic syndrome.[2]

Patients with nephrotic syndrome who are receiving immunotherapy may be more likely to develop Lemierre syndrome.

Case Presentation:

An 11-year-old child who had previously been treated with tacrolimus for NS appeared with a 2-week-old headache and neck pain as well as reduced oral intake and urine output. He had previously sought medical care twice, but was discharged after being diagnosed as neck muscle sprain. His symptoms worsened, so he was sent to the emergency room. At triage, it was discovered that the patient had a stiff neck, was in severe pain, and looked to be in discomfort. He was alert and had normal vital signs. The child appeared tired and complained of an occipital headache and a sore throat during a subsequent history-taking and physical examination. The patient's voice was muffled and exhibited peritonsillar edoema on the right side. White blood cell count was 14100 cells/microliter, with 82.9% neutrophils, a high C-Reactive Protein of 122 mg/L (12.2 mg/dL), and 0.3 g/L of protein in the urine. All other tests, including electrolytes, were normal. The proximal portion of the right intrajugular vein had acute thrombosis, and a massive retropharyngeal abscess was seen on the computed tomography angiography. After beginning treatment with piperacillin tazobactam, the patient was sent to the operating room for emergency drainage. The patient was put on anticoagulation after the drainage, but his stay was made difficult by the abscess reforming, necessitating another incision and drainage. On the eighth day after being admitted, he was sent home with strict ENT follow-up.

Discussion:

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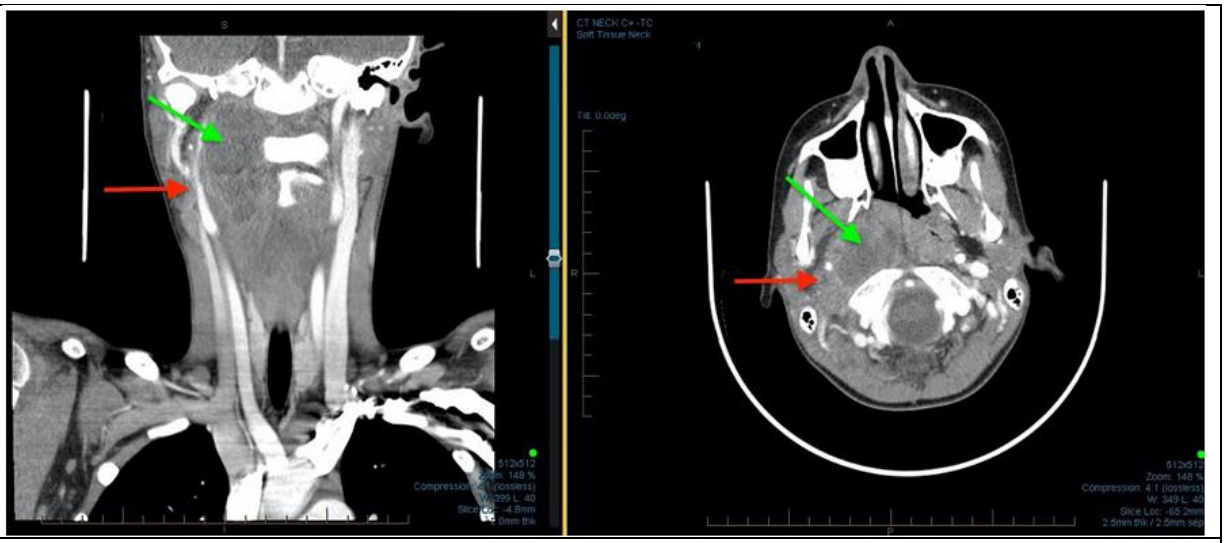
In this article, Researchers discuss the first instance of LS in a patient with NS. Despite reports of rising frequencies of F necrophorum infections, mortality from LS has been reported to have decreased with antibiotic therapy. Clinicians need to be aware of this aggressive illness since prompt detection and therapy are essential. Several case reports that have been published in recent years describe LS in previously healthy people with concomitant thrombosis in various areas, including the lungs, bones, and brain.[2] Additionally, LS has been reported in individuals with a variety of illnesses, including systemic lupus erythematosus and other forms of arthritis, among others. Any patient with such illnesses who presents with neck discomfort, a sore throat, a fever, or elevated inflammatory markers should be evaluated by an emergency physician with a low threshold for LS.[3]



Computed tomography angiogram of the patient showing a large retropharyngeal abscess (green arrow) with acute thrombosis of the right intrajugular vein (red arrow)

Conclusion:

Researchers describe a case of an infant with NS who had LS. If unrecognised and treated quickly, LS may lead to severe morbidity and can be fatal. Thrombotic events, such as thrombosis of the internal jugular vein, are more common in patients with NS. In certain cases, a slight level of suspicion can allow quick and diagnosis and treatment

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