Pedia Companion

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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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Looking forward to your valuable feedback

Best Regards,
Medical Team, Micro Labs Limited

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1. A Study on Adolescents with High Blood Pressure and Worsening Cardiac Damage.

Introduction:

The condition known as left ventricular hypertrophy (LVH) is characterised by an increase in left ventricular mass that may be brought on by an increase in wall thickness, an expansion of the left ventricular chamber, or a combination of the two.[1]Adults with left ventricular hypertrophy (LVH) and heart failure with retained ejection fraction linked to LVDD are known to be at increased risk for cardiovascular disease and mortality. Adolescent high blood pressure and hypertension are becoming more common, and various risk factors, including obesity, vascular stiffness, and lifestyle choices, have been linked to BP increase.[2] This research project aimed at examining the longitudinal course of adolescent cardiac injury and high blood pressure (BP)/hypertension.

Elevated BP/hypertension has been associated with early cardiac damage, irrespective of sex and obesity status

Methods:

17-year-olds from the birth cohort of the Longitudinal Study of Parents and Children (1856/1011 females) were tracked for 7 years. While 17 and 24 years old, echocardiogram and blood pressure were evaluated. The cutoff for elevated/hypertensive blood pressure was ≥130 mmHg systolic and ≥85 mmHg diastolic. LVMI2.7 (left ventricular mass indexed for height): ≥51g/m2. LV diastolic function (LVDF) E/A <1.5 was regarded as LVD dysfunction(LVDD), while 7 was regarded as LV hypertrophy (LVH). Generalized logit mixed-effect models and cross-lagged structural equation temporal path models, which account for cardiometabolic and lifestyle factors, were used to analyse the data.

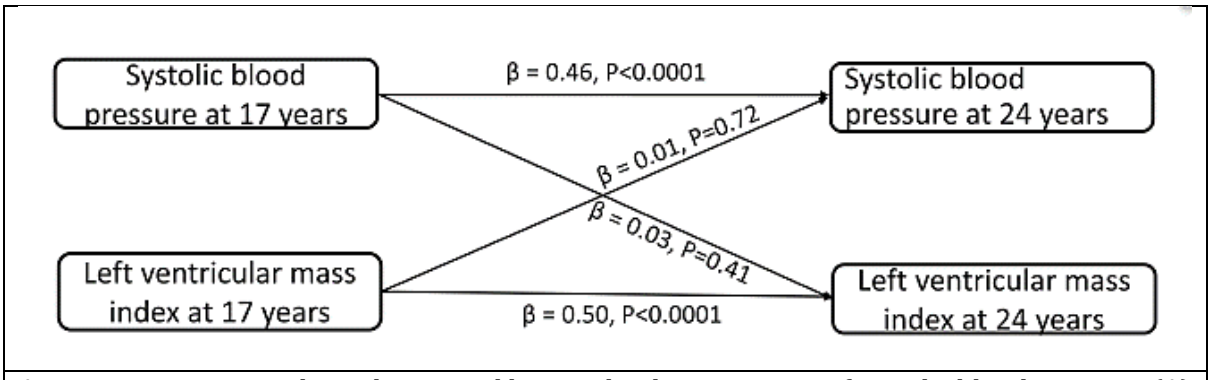
Results:

The prevalence of raised systolic blood pressure/hypertension increased from 6.4% to 12.2% throughout the course of the study, as did that of LVH from 3.6% to 7.2% and LVDD from 11.1 to 16.3%. Females' worsening LVH was linked to cumulatively high systolic blood pressure and hypertension (Odds ratio [OR] 1.61 (1.43 - 1.80); p<0.0010 alone). Both males and females with deteriorating LVDD also had elevated systolic blood pressure or hypertension. Higher diastolic BP/hypertension was correlated with worsening LVH in males and females. Higher baseline systolic blood pressure was linked to LVDF (β=0.09, SE=0.002, p=0.029) but not LVMI2.7 at follow-up in cross-lagged temporal path models. A higher baseline cardiac index was not linked to a higher follow-up systolic blood pressure. Except for LVDF, greater follow-up cardiac indices were

related with higher baseline diastolic blood pressure. Follow-up diastolic BP was not correlated with baseline LVMI2.7.

Discussion:

These findings show that greater diastolic blood pressure may temporally precede premature cardiac damage and that cumulatively elevated systolic and diastolic blood pressure/hypertension was related with cumulative early cardiac damage, independent of sex, obesity, and arterial stiffness status. Throughout a seven-year follow-up period, researchers present the temporal time sequence for the onset of high systolic and diastolic blood pressure/hypertension and the initial premature cardiac injury. This research filled in knowledge gaps that the earlier research had identified, by addressing issues like the long-term natural history of hypertension in the paediatric population, the connection between childhood and adult hypertension, and surrogate markers of cardiovascular disease in both the paediatric and adult populations.[3,4]



Auto-regressive cross-lagged temporal longitudinal associations of systolic blood pressure (A) with left ventricular mass index 17 – 24 years among 1856 adolescents

Conclusion:

In this prospective birth cohort research, cumulative increased systolic and diastolic BP/hypertension was related with cumulative early cardiac damage, independent of sex and obesity status. These findings imply that adolescence may be a crucial period for the identification and management of high blood pressure and its cardiac consequences.

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2. A Retrospective study on comparison of Short vs. Long Course Intravenous Antibiotics for the Treatment of Urinary Tract Infection in Infants <60 Days of Age.

Introduction:

The are most frequent bacterial infection and a prominent cause febrile illness in young children, urinary tract infections (UTIs) the prevalent reason for hospitalization for infants younger than 60 days. However, the best method for administering intravenous (IV) antibiotic therapy following a UTI diagnosis in this group remains uncertain. This study aimed to examine the relationship between short-course (≤3 days) and long-course (>3 days) IV antibiotic treatments and treatment failure, which was defined as re-hospitalization from the discharge date within 30 days.

The treatment failure for infants hospitalized with UTI is rare and not associated with IV antibiotic duration.

Methods:

This single-center, retrospective study. retrospectively analyzed the medical records of all newborns <60 days old with proven bacterial UTIs who were hospitalised and administered IV antibiotics. Through a retrospective review of infants with confirmed UTIs receiving IV antibiotics at a tertiary referral center, researchers examined whether there was a relationship between the length of IV antibiotic therapy (long [>3 days] vs. short [3 days]) and treatment failure.

	Adjusted OR for treatment failure, N = 403	
	OR	(95% CI)
IV antibiotic duration		
Short (≤3 days)	1.00 (ref)	
Long (>3 days)	0.42	(0.11-1.63)
Age (days)		
<3 weeks	1.00	(ref)
>3 weeks	1.14	(0.37-3.52)
Premature (<37 weeks)		
No	1.00	(ref)
Yes	0.19	(0.03-1.10)
Length of stay (days)		
<15	1.00	(ref)
>15	6.56	(1.65-26.09)
Comorbidities		
No	1.00	(ref)
Yes	1.77	(0.49-6.46)
Fever		
No	1.00	(ref)
Yes	3.37	(1.05-10.86)
Blood culture		
Negative	1.00	(ref)
Positive	3.30	(0.93-11.78)
UTI history		
Single	1.00	(ref)
Recurrent	6.82	(1.71-27.15)

Abbreviations: CI, confidence interval; IV, intravenous; OR, odd ratios; UTI, Urinary tract infections.

Multivariate Logistic Regression

Results:

Among the 403 infants included in the study, 39% received ampicillin and cefotaxime treatment and 34% with ampicillin and gentamycin or tobramycin.The average IV antibiotic treatment lasted five days (interquartile range:3–10 days).Treatment failure occurred in 5% of patients in both short and long-term patients. the treatment failure rate was similar in both the groups(P >.05). There was no significant correlation between the length of treatment and the treatment failure.

Discussion:

In this extensive retrospective cohort analysis of infants less than 60 days old, researchers looked at the relationship between the length of IV antibiotic therapy for UTIs and the chance of unsuccessful treatment. Researchers found no evidence that receiving short-course IV treatment (less than 3 days) increased the likelihood of readmission for UTIs.[2] In a similar manner, Angeles et al. carried out a more than ten-year retrospective analysis of otherwise healthy infants younger than 60 days of age with a UTI and found an increasing trend towards short-course parenteral antibiotics as well as no differences in readmission rates as the parenteral antibiotic duration was shortened.[3]

Conclusion:

Treatment failure in newborns admitted to hospital for UTI in the first two months of life is rare and is unaffected by whether parenteral antibiotic therapy lasts longer or shorter than three days. More newborns in this age group could be treated with short IV antibiotic regimens, which could shorten hospital stays and utilize fewer resources without impacting readmission rates.

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3. A study examining the impact of parental age on the phenotypic severity of autism spectrum disorder

Introduction:

The term "autism spectrum disorder" (ASD) refers to a range of neurodevelopmental abnormalities. Repetitive behavioural patterns, interests, activities, and issues with social contact are characteristics of this spectrum. Children with ASD often experience behavioural and psychological issues. ASD is a complex neurodevelopmental disease. These children's poor adaptation abilities cause them to become

There is no association between increasing parental age and increasing autism spectrum disorder phenotypic severity.

distressed when their environment changes. According to a recent hypothesis, there must be a connection between increasing genetic load and increasing parental age in the pathogenesis of autism spectrum disorder because both factors have been linked to an increased risk of developing an autism spectrum disorder, including increased genetic load and increased parental age. The objective of this research was to test the hypothesis that, if increased genetic load brought on by paternal age plays a role in the aetiology of autism spectrum disorder, there should be a correlation between parental age and the severity of the phenotypic manifestations of the condition.

Methods:

In the current investigation, a group of individuals with a history of autism spectrum disorder was evaluated over time (n = 351). These participants were chosen through a retrospective review of the medical records of individuals seeking outpatient genetic consultations. The following data were gathered for each subject: age at initial clinical evaluation, gender (male or female), classification of autism spectrum disorder (any type of developmental regression after birth or no developmental regression after birth) and parental age at subject's birth (maternal and paternal). Measurements of the severity of the autism spectrum disorder were made using the Autism Treatment Assessment Checklist on people who had been diagnosed with the condition.

Results:

The Autism Treatment Evaluation Checklist results for the relationship between maternal and paternal age and autism spectrum disorder phenotype showed that there was no strong relationship between increasing autism spectrum disorder phenotypic severity and rising maternal or paternal age, with the exception of a significant inverse correlation between increasing maternal age and decreasing autism spectrum disorder phenotypic severity for the Autism Treatment Evaluation Checklist subscale of sociability.

ATEC score	β coefficient[a]	Standard error	T value	*P* value
Total	–0.105	0.17	–0.61	.54
Speech/language/communication	0.015	0.06	0.25	.80
Sociability	–0.070	0.065	–1.08	.28
Sensory/cognitive awareness	–0.0080	0.071	–0.11	.91
Health/physical/behavior	–0.060	0.11	–0.57	.57

Abbreviation: ATEC, Autism Treatment Evaluation Checklist.

Summary of the Relationship Between Paternal Age at the Time of Subject's Birth and ATEC Scores.

The subject's age was used as a covariable in the SAS regression procedure statistical models constructed

Discussion:

The current study, which employed a unique method to assess the potential link between growing paternal age and growing phenotypic severity of autism spectrum condition, was unable to detect a meaningful relationship. For the sociability subscale of the Autism Treatment Evaluation Checklist, it was found that there was a significant inverse relationship between maternal age and autism spectrum disorder phenotypic severity, defying the potential relationship between increasing parental age and increasing autism spectrum disorder phenotypic severity.[2] An increase in maternal or paternal age and the likelihood of being diagnosed with an autistic spectrum disorder are not significantly correlated, according to a recent cohort research on children with the condition. [3] This finding supports the no-effect association seen in the current study.

Conclusion:

The current study offers significant new insights into why there doesn't seem to be a correlation between parental age and the severity of an autistic spectrum disorder. The current study's findings are consistent with a number of recent investigations that similarly found no conclusive link between growing parental age and rising genetic burden as assessed by copy number variations.

References:

1. Mughal S, Faizy RM, Saadabadi A. Autism Spectrum Disorder. 2022 Jul 19. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 Jan
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4. A Rare case of term neonate with Neurocristic cutaneous hamartoma of the scalp with disseminated melanocytic nevi

Introduction:

The first description of cutaneous neurocristic hamartoma (NCH) was made by Tuthill et al. in 1982. It is an uncommon hamartomatous proliferation of melanocytic, neuroid, and mesenchymal cells.1 There are no established recommendations for management. Incorrect diagnosis and treatment may result from non-recognition. Because there is a chance that the condition would eventually develop into malignant melanoma, close monitoring is crucial. Congenital NCH of the scalp is exceptionally rare, likely the result of abnormal neuromesenchyme development, and has a high risk of developing

This is a rare instance of both huge melanocytic patches on the head and many large cutaneous melanocytic patches. Early detection and treatment, including surgical excision, are crucial to lowering the risk of malignancy

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into malignant melanoma. It can happen in the neck, back, or scalp, with the scalp showing the most affinity. Its possibility for misdiagnosis and capacity for malignant change over time make it important clinically.[2] here is a report of the newborn with of NCH of the scalp.

Case Presentation:

A term newborn boy with a birth weight of 3.2 kg and non-consanguineous parents was admitted to neonatal hospital with swollen scalp and scattered black patches on his body from birth.During examination, it was discovered that the parieto-occipital region was occupied by a well-defined fluctuant mass measuring 20×18 cm. The mass was actively bleeding. The parietal and occipital bones lost their integrity, and the sagittal suture overlapped. Over 80% of the swelling was covered by a huge hyperpigmented macule, which also dispersed other hyperpigmented macules and nodules (melanocytic nevi) all over the body. These nodules ranged in size from a few millimetres to several centimetres. No specific neurological impairments were found. Normal cardiac and renal function was seen. The child's sight was not examined, but he or she can suckle and had normal reflexes. When closely examined, the lesions revealed normal melanocytic nevi, despite the first assumption that they were caused by cytomegalovirus infection. The initial MRI of the brain revealed a deficiency in the occipital area, particularly on the right side, along with the herniation of the occipital lobe and ventricles via the opening in the calvarium. Normal signal return was seen in the infratentorial brain parenchyma. No extra-axial or intra-axial space-occupying lesions were seen. The brain stem, sella, and suprasella area, as well as the cisterns and sulci, all seemed normal. Due to the possibility of bleeding, a biopsy of the swelling could not be undertaken. A structurally healthy heart was seen during a screening echocardiogram.The liver, spleen, kidneys, and intestines did not exhibit any abnormalities based on the abdominal ultrasound. Rubella and CMV antibodies in the serum were negative. Neurocutaneous melanosis was the differential diagnosis. Nonetheless, there were no visible melanocytic nevi seen in the baby's brain, and there were no neurological impairments. For NCH, there isn't a set of treatment recommendation. Each day, the scalp's hamartoma was treated, and blood transfusions were administered. Both the edoema and the haemorrhage were greatly reduced. Because of the risk of bleeding and the severity of the hamartoma, the herniation of the brain and excision of the tumour have not been performed. During five weeks, propranolol was administered to treat the haemangioma-like inflammation. Although a large local excision is preferable, the size of the tumour and the potential for bleeding made this problematic.With consistent dressing and propranolol treatment in infancy, there was a regression of the tumour and granulation tissue healing. The mother has

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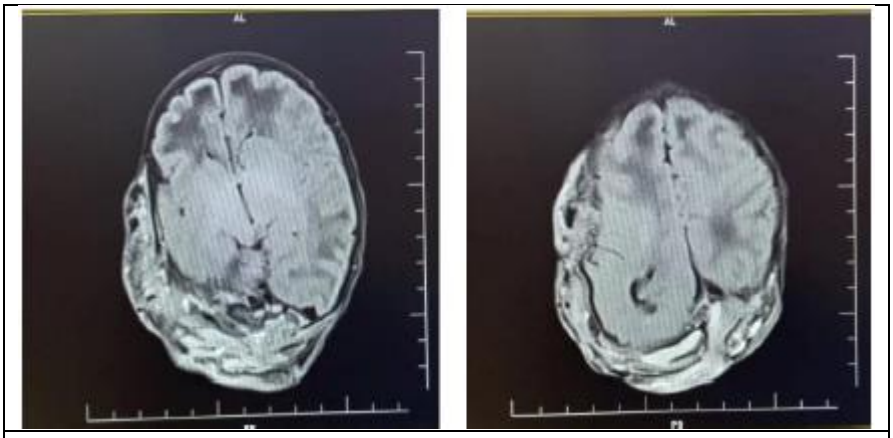

MRI of the brain axial view showing a defect in the occipital region (left) associated with herniation of occipital lobe (right), more on the right side.

received counselling, and the infant is currently being monitored. He receives weekly appointments at the neurosurgical clinic. Propranolol treatment was successful; the haemangioma-like swelling decreased, but the tiny encephalocele became larger due to the expansion of the ventricles. Six weeks later, the brain underwent a second MRI, which revealed that the occipital encephalocele extension had grown. The encephalocele is currently 18 x 18 cm in size, and ventricular fluid is present in the cavity. This week, the child was planned for neurosurgery to place a shunt to lessen the size of the encephalocele. The presence of many melanotic patches across the body, together with the encephalocele, continue to place the diagnosis of neurocristic syndrome high on the list. Researchers referred the infant to haemato-oncologists and neurosurgeons. To decrease the size of the obstructed ventricles in the encephalocele, the neurosurgeons intend to install a shunt. The haemato-oncologists have asked us to keep a clinical eye out for any changes in the melanotic areas. The mother rejected for a skin biopsy. The encephalocele is now more noticeable, and the haemangioma has shrunk.The previously detected haemangioma like mass on the MRI has now disappeared, and the most recent scan reveals a clearly defined encephalocele.

Discussion:

An unusual lesion called NCH of the scalp is thought to be the result of abnormal neuromesenchyme formation. The variety of differentiation present in neural crest-derived cells is reflected in its constituent parts. It can be acquired or congenital and is most frequently seen on the scalp. [2]Propranolol had a positive effect on the haemangioma in this unusual case of neurocristic syndrome. The reports of such circumstances that researchers present here are quite rare. The encephalocele that this infant has is linked to several melanoses and large scalp melanotic patches. About 12% of patients with large melanosis acquire neurocutaneous melanoses, which was the case with this infant.[3,4]

Conclusion:

It is unusual to have both huge melanocytic patches on the head and several large cutaneous melanocytic patches. In order to lower the likelihood of malignancy, early

detection and treatment, including surgical excision, are crucial. The prevention of the risk of malignant transformation, the reduction of impairment, and the improvement of quality of life all depend on long-term follow-up in a multidisciplinary approach.

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