very low. In a study of 40 otherwise normal patients with isolated GH deficiency, 35 (87.5%) had normal brain MRIs. The abnormal findings of brain MRI in the minority of isolated GH deficiency cases included pituitary hypoplasia, pituitary stalk agenesis, lack of the normal T1-weighted pituitary hyperintensity in the posterior part of the sella turcica, and the presence of a high-intensity signal at the infundibular level representing ectopic neurohypophysis. Traditionally, these brain and pituitary MRI images are obtained with the use of contrast material (gadolinium). The main purpose of using contrast material is for the evaluation of pituitary microadenomas. Given the fact that significant strides made in MRI technology and pituitary microadenomas are not appeared to be associated with GH deficiency, the necessity of using contrast material when obtaining brain and pituitary MRI in cases of short stature and isolated GH deficiency should be reassessed. GBCAs have been shown to deposit in different tissues including the kidneys and the brain. The risk increases with repeated doses. The clinical significance of this deposition is unclear at this point but warrants caution especially in pediatric population who have a longer expected lifespan to manifest any delayed effects. Allergic reactions and gastrointestinal symptoms in pediatric patients can occur with GBCA administration, although the incidence is low. Using contrast material also increases the total cost of the MRI study and prolongs the time needed to complete it. Moreover, in order to use contrast material, intravenous venous (IV) access is required which causes discomfort and additional stress to children and their families.

Therefore, we performed a retrospective review of otherwise healthy patients with short stature and/or growth hormone deficiency who underwent brain and pituitary MRI without and with contrast, to assess whether contrast administration led to diagnoses that would have otherwise been missed and/or impacted the patient’s clinical course. Objectives: To compare the diagnostic yield of non-contrast MRI with pre and post-contrast MRI of the brain and pituitary in evaluation of pediatric patients with short stature and/or growth hormone deficiency. A secondary objective is to measure the size of the pituitary gland and correlates it with peak growth hormone levels (using insulin/arginine).

Methodology: We included patients who underwent brain/pituitary MRI with/without contrast performed at our institution between Jan 2013-Dec 2018 who have short stature/GH deficiency. We excluded patients with known diagnosis of other pituitary hormone deficiencies prior to obtaining MRI studies, genetic and neurological disorders, known tumors/malignancies of any type, or renal failure. Two pediatric neuroradiologists independently reviewed the brain and pituitary MRI of these patients (each read 50% of the cohort) blinded to the clinical data and diagnoses. Each radiologist initially reviewed only the non-contrast portions of the studies, and subsequently, the same radiologist reviewed the entire study, including pre- and post-contrast portions in a separate session. The two sessions were 6 weeks apart to avoid recall bias. Several imaging findings including size and morphology of pituitary gland, presence of congenital anomalies or focal lesions and any associated intracranial findings systematically recorded, and subsequently analyzed.

Hypotheses: 1. The incidence of finding congenital pituitary cysts is the same when obtaining brain/pituitary MRI imaging using gadolinium contrast versus when not using contrast in patients with short stature and or isolate GH deficiency.
2. The incidence of discovering abnormal infundibulum is the same when obtaining brain/pituitary MRI imaging using gadolinium contrast versus when not using contrast in patients with short stature and or isolate GH deficiency.
3. Small pituitary size correlate with GH deficiency.

Results: We identified 327 patients with short stature/GH deficiency from Jan 2013-Dec 2018 (68.5%) are males and 103 (31.5%) are females. The mean age at the time of imaging is 10 years and the median is 11 years. -161 (49.24%) have height z-score < -2.25 and 166 (50.76%) have height z-score > -2.25-82 (25.07%) have IGF1 z-score for age < -2, 102 (31.19%) have z-score ≥-2 to ≤-1, 141 (43.12%) have z-score > -1 and 2 (0.62%) have no level done. -63 (19.27%) have GH peak <5, 87 (26.61%) have GH peak 5-7.99, 53 (16.21%) have GH peak 8-9.99, 30 (9.17%) have GH peak > 10 and 94 (28.75%) did not undergo GH provocative testing. The kappa coefficient for paras intermedia cyst on pre vs. post contrast imaging is 0.74 and 0.55 for the infundibulum on pre vs. post contrast imaging. The mean pituitary height for patients with IGF z-score < -2 is 3.9 mm, 4 mm for z-score ≥-2 to ≤-1 and 4.3 mm for z-score > -1. The mean pituitary height for patients with peak GH < 5 is 3.8 mm, 4.2 mm for peak 5-7.99, 4.3 mm for peak 8-9.99 and 4.4 mm for peak > 10.

Conclusion: This question has not been answered or even raised in the literature. Our findings suggest that there is no added benefit to use gadolinium when obtaining brain/pituitary MRI for the evaluation of GH deficiency/short stature. Furthermore, it seems that there is an association between the pituitary height and the GH status of the cohort which is in line with previous published studies.

Diabetes Mellitus and Glucose Metabolism

GESTATIONAL DIABETES, DIABETES IN PREGNANCY, AND IN UTERO EXPOSURES

Faster Acting Insulin Aspart in Patients With Gestational Diabetes Mellitus - an Early Experience From India
Supratik Bhattacharyya, MD, MRCP(UK), FACP, MSc(Endocrinology & Diabetes).
AMRI SALTLAKE, INDIA, West Bengal, India.

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Aims: This study was undertaken to assess the effectiveness and safety of faster acting insulin aspart in patients with gestational diabetes. Though faster acting insulin aspart is approved to be used in pregnancy by regulatory bodies like USFDA, EMA and DCGI (India), no data is published till date on its usage in pregnancy. Settings and Design: An open-label, nonrandomized, and observational study conducted at single centre at Kolkata, India.

Subjects and Methods: A total of 37 patients with gestational diabetes mellitus.
(GDM) were included in the analysis. Patients were started on insulin therapy (faster acting insulin aspart ± basal insulin) once medical nutrition therapy for 2 weeks failed to achieve control, that is, fasting plasma glucose ≥90 mg/dL and/or 1.0 h postprandial plasma glucose ≥130 mg/dL. Basal insulin dose was titrated to achieve a fasting of 90-100 and the Faster aspart was titrated to achieve a post-meal of 120 and not exceeding 130. Patients were followed once every 4 weeks until the 28th week, then once every 2 weeks until 32nd week, then once every week until delivery, and the final visit was on 30 ± 7 days after delivery of the child. Results: Out of 37 full term deliveries, only two had macrosomia. No congenital defects were noted in the anomaly scan and at births. There were no episodes of neonatal hypoglycemia reported. Only one episode of post-meal symptomatic maternal hypoglycemia was reported. Mean number of FIASP injections per day was 2.88 ± 0.39. Mean daily dose of FIASP used was 22.7 ± 6 international units. A total of 89% of the patients received faster aspart thrice daily and remaining received it twice daily. Conclusions: Faster acting insulin aspart was found safe in pregnancy, however, more studies with double-blind, standard controlled studies are required to confirm the findings of this study.

Pediatric Endocrinology

PEDIATRIC ENDOCRINE CASE REPORTS II

Long-Term Developmental Impact of Withholding Parenteral Nutrition in Pediatric-ICU: A 4-Year Follow-Up of the PEPaNIC Randomized Controlled Trial

An Jacobs, MD1, Karolijn Dulfer, PhD2, Renate Eveleens, MD2, José Hordijk, Msc2, Hanna Van Cleemput, MSc1, Ines Verlinden, MD1, Pieter Wouters, MSc1, Liese Mebis, PhD1, Gonzalo Garcia Guerra, MD3, Koen Joosten, MD PhD2, Sascha Verbruggen, MD PhD2, Fabian Guiza, Phd3, Ilse Vanhorebeek, Phd3, Greet Van den Berghe, MD PhD3.

1KU Leuven, Leuven, Belgium, 2Sophia Children’s Hospital, Rotterdam, Netherlands, 3University of Alberta, Edmonton, AB, Canada.

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Aim: Between 2012-2015, the PEPaNIC randomized controlled trial, which included 1440 critically ill infants and children, showed that withholding parenteral nutrition during the first week in the pediatric intensive care unit (PICU) (late-PN), as compared with initiating supplemental PN early (early-PN), improved PICU outcomes (1) and improved neurocognitive development assessed 2 years later (2). The latter was explained by avoiding early-PN induced adversely altered DNA-methylation of 37 CpG sites (3). As a large number of patients were younger than 1 year of age at randomization and given that assessment of most neurocognitive domains is only possible from 4 years of age onwards, we performed a 4-year follow-up to determine the impact of late-PN versus early-PN on physical, neurocognitive, and emotional/behavioral development. This pre-planned, 4-year follow-up study of the 1440 PEPaNIC patients and of 369 matched healthy children was blinded for treatment allocation (ClinicalTrials.gov-NCT01536275). Methods: Studied clinical outcomes included anthropometrics, health status, parent/caregiver-reported executive functions, and emotional/behavioral problems, and clinical tests for intelligence, visual-motor integration, alertness, motor coordination and memory. Univariable and multivariable linear and logistic regression analyses adjusted for risk factors assessed the impact of late-PN versus early-PN on the outcomes and investigated a potential mediation role of the adversely altered DNA-methylation of 37 CpG sites previously shown to be evoked by late-PN as compared with early-PN (3). Results: Overall, at 4 years follow-up, patients (356 late-PN patients, 328 early-PN patients) could be tested neurocognitively. They revealed worse anthropometric, health status, neurocognitive and emotional/behavioral developmental outcomes than the healthy control children. Outcomes of late-PN patients were never worse than those of early-PN patients. In contrast, late-PN patients had fewer internalizing (P=0.042) and externalizing problems (P=0.046), and fewer total emotional/behavioral problems (P=0.007) than early-PN patients, which were normalized by late-PN. Avoiding the early-PN induced adversely altered DNA-methylation status of the 37 CpG sites statistically explained its impact on the behavioral outcomes. Conclusion: Four years after randomization to late-PN or early-PN in the PICU, late-PN did not show harm, and was found to protect against emotional/behavioral problems, with altered DNA-methylation as a potential biological mediator hereof. These data further support de-implementation of PN-use early during critical illness in infants and children. (1) Fivez et al. N Eng J Med 2016 (2) Verstraete et al. Lancet Respir Med 2019 (3) Guiza et al. Lancet Respir Med 2020 (in press)

Reproductive Endocrinology

REPRODUCTIVE ENDOCRINOLOGY: REPRODUCTIVE FUNCTION AND DYSFUNCTION ON DEVELOPMENT

Assessment of Endothelial Dysfunction by Flow Mediated Dilation in Postmenopausal Women

Seema Chopra, MD, Additional Professor, Piyushi Sharad, MD, Ajay Bahl, MD, DM Cardiology, Pooja Sikka, MD.

Post Graduate Institute of Medical Education & Research, Chandigarh, Chandigarh, India.

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Menopause is defined by the World Health Organization as the permanent cessation of menses as a result of the loss of ovarian follicular Function or surgical removal of ovary. Menopausal health demands priority in Indian scenario due to increase in life expectancy and growing population of menopausal women. It is well known that cardiovascular risk is higher in postmenopausal women than in premenopausal women, but it is unclear how much of the elevated risk is related to aging, menopause itself or presence of other confounding factors. Endothelial dysfunction is one of the most important predictors for determining early atherosclerotic risks as it precedes overt vascular disease by years and may itself be a potentially modifiable risk factor. Although no gold standard for the measurement of endothelial function exists, the measurement of flow mediated dilation (FMD) in the brachial artery, assessed with Doppler ultrasonography, is the most...