CAPE NEWS

Newsletter of the Indian Society for Pediatric and Adolescent Endocrinology (ISPAE) *www.ispae.org.in*

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Contents

From the Editor's Desk

Dear Friends,
Greetings from the CAPE NEWS TEAM!

I am positively hopeful that by now most of you have adapted to the "new-normal" post-COVID19 pandemic. We are thrilled to have received reports on a whopping number of academic activities conducted by ISPAE members for this issue of CAPE NEWS.
There are important announcements being shared in this issue including that of ISPAE elections and brochure for online Pediatric Diabetes Update.
Further, we have lined up a special article on Turner Syndrome growth Charts from India and a Mini-Review on CGM and Time-in-range apart from usual features in the CAPE NEWS.

I hope you will find the issue informative and useful!
Stay safe &healthy!

Rakesh Kumar & TEAM

Message from the ISPAE Office Bearers

Dear Friends

Greetings from the executive council!

This year has seen unprecedented events in the past months. We hope you and your families are healthy and safe. All of us have contributed to the care of our patients and covid patients as and when required in the best way possible and would continue to do so.

All academic meetings big or small have become virtual. Members of our society have conducted many such sessions with the dIAP program of central IAP, state or district branches of IAP or on their own. It is important to continue learning as it can never be enough especially in medicine. Our own mid-term meeting with ISPAD to be held in November had to be postponed to 2022. Details of which and all other meetings to be conducted by our members are available in this newsletter as well as on our website.

Our term is coming to an end and the elections have been announced. Details of the election process are available in the newsletter and the website. I request more and more members to actively participate in the activities of the society, apply for various posts you are eligible for. The society grows when members are active and contribute constructively to the activities of the society. I wish the best for the incoming team

We were not able to achieve many things that we set out to do or envisioned. The fault may have been on my part. I was ably assisted and helped at each step by Ahila Ayyavoo the honorary secretary cum treasurer and Leena Priyambada the joint secretary. Nothing could have been possible without the advice and guidance from senior members of the society who are our advisors. Members of the executive council worked hard and contributed to the activities of the council. Dr Ravikumar the webmaster and Rakesh Kumar the CAPENEWS editor have worked tirelessly with their respective teams to keep up with the good work. I would like to thank all of you for having helped me in all possible ways to dispense my duties as the president. It was really an honour for me to hold that post.

Wishing and hoping that you and your families remain healthy and safe.

Seasons greeting and best wishes for the new year

Preeti Dabadghao

Hearty Welcome to New ISPAE Members

Seema Rai	Assistant Professor, Department of Pediatrics, Guru Gobind Singh Medical College, Faridkot, Punjab.	seemadoc98@yahoo.co.uk
Sonali Verma	PDCC, Ped Endocrinology, SGPGI, Lucknow	drsonaliverma01@gmail.com
Eshita Bhowmik	PDCC, Ped Endocrinology, SGPGI, Lucknow	eshitabhowmik@gmail.com
Vinod Gupta	Dr RML Hospital, Consultant Pediatrics and in charge Ped Endocrinology. New Delhi 110011	drvg2006@gmail.com
Ipsita Mishra	Asst Professor, Dept of Endocrinology, SCB Medical College and Hospital, Cuttack, Odisha, 753007	ipsitamishra1981@gmail.com

ISPAE Elections for the term 2021-22

Announcement & Invitation for Nominations (E-mailed 13.9.2020)

(Last date for receipt of Nominations:15/10/2020)

On behalf of the executive council of ISPAE, I am pleased to announce the start of the election process for office bearers and executive council members of ISPAE for the years 2021-22. I have been appointed the returning officer for the ISPAE elections this year by the current executive. I invite nominations for the post of ISPAE office bearers and executive council for the term 2021-22. Please see the attachment for the rules in our constitution relevant to elections. If you have any queries related to whether you are eligible to stand for office, please don't hesitate to email me at electispae2021@gmail.com

POSTS

➢Office bearers: 3 (President, Secretary-treasurer, and Joint secretary).
➢Executive members: 7.

contd……

PROCESS OF APPLYING

- Nomination on plain paper by a life member, proposed and seconded by other life members, which must be scanned and emailed as an attachment to me at this id electispae2021@gmail.com.

- The nomination form must mention:

1. The post applied for
2. Names and address of candidate, proposer and seconder clearly, with all 3 signatures below.

- Nominations must be accompanied by a photograph, and a brief biodata, both as email attachments, for display on the website.

- Nominations for office bearer posts should be accompanied by a brief statement of previous contributions to ISPAE and to the field of pediatric endocrinology in India, and the time period when they were a member of the executive.

- There is no limit to the number of candidates one may nominate ('proposer and seconder'), however one candidate can apply for one post only.

- The last date for receipt of nominations is October 15th 2020. The last date for withdrawal of nomination is October 25th 2020.

The schedule for ISPAE Election 2020 is as follows:
(Subject to change under unforeseen circumstances)

Process Completion	Date
Election Notification	13/09/2020
Last date for receipt of Nominations	15/10/2020
Last date of Withdrawal of Nominations	25/10/2020
Publication of Final List of Candidates	26/10/2020

[Cut-off time for all is 11.59pm IST]

Due to the current pandemic situation, the executive committee has decided that there will be an E-voting and no ballot voting this year. The details for the voting process shall be declared at a later date, along with the declaration of candidates.
Please note that all communications pertaining to the election process shall be on email. The updates shall be posted on society website from time to time.

It is advisable for the members to check and rectify [if necessary] their contact details on the website, including the registered mobile number and email ids.

Regards,
Tushar Godbole
Returning Officer,
ISPAE election 2021-22

Nomination Form for ISPAE elections 2021-2022

PROPOSER

I, Dr_____, life member of ISPAE, would like to propose the name of Dr _____,

for the post of_____,

of Indian Society of Pediatric and Adolescent Endocrinology (ISPAE).

Signature of Proposer
Address: Date:

Email:

SECONDER

I, Dr _____, life member of ISPAE, would like to second the name of Dr _____,

for the post of _____, of ISPAE.

Signature of Seconder
Address: Date:

Email:

CANDIDATE

I, Dr _____, life member [membership no____], ISPAE, agree to the proposal above of my name for the post of _____, of ISPAE.

Signature of Candidate
Address: Date:

Phone:
Email:

Special Article

Turner Syndrome Growth Charts from Western India

Nikhil Shah, Vaman Khadilkar, Anuradha Khadilkar
Department of Growth and Pediatric Endocrinology, Hirabai Cowasji Jehangir Medical Research Institute, Jehangir Hospital, Pune, Maharashtra, India.

Disease specific growth charts are available for conditions like Turner syndrome (TS), Down syndrome, Silver Russell syndrome, Noonan syndrome and achondroplasia, as the growth pattern in terms of weight, height and body mass index in these children is very different as compared to normal children. The importance of using country specific growth charts for assessing anthropometric parameters of normal children is already established. [1] Similarly, country specific growth charts for conditions like TS are the need of the hour. In this short commentary we highlight key points from recently published TS growth charts from Western India. [2]

Indian girls with TS were shorter and lighter (mean adult height and weight of Indian TS girls were 140.1 cm and 41.5 kg) than their European counterparts (Ranke et al reported 146.8 cm and 49 kg), but similar to their Asian counterparts (Isojima et al reported 141.2 cm and 42.9 kg). [2-4] When compared to the combined IAP-WHO growth charts for Indian girls, it is interesting to note that the 50th percentile of the height curve of TS girls falls even below the 3rd percentile height curve of the combined IAP-WHO charts (**Figure 1**). The most interesting finding, also demonstrated in other studies, is the absence of the pubertal height spurt in TS girls as compared to normal healthy girls (**Figure 1 and Figure 2)**. [5]

Figure 1 shows the TS charts with the standard 7 percentiles, in blue color, while in the background the IAP-WHO charts are shown in brown color. For the purpose of clarity only 3rd, 50th and 97th percentiles of IAP-WHO charts are shown. These TS charts will be useful for early pickup of secondary growth failure (hypothyroidism, celiac disease, anemia, etc.) in Turner girls, which would be missed on growth charts for normal children. These charts may also be useful for monitoring Turner girls on growth hormone therapy.

In conclusion, TS growth charts - distance and velocity - specific for Indian girls (1-18 years) have been published for the first time and we hope that they will be useful to monitor growth of Turner girls and their response to treatment.

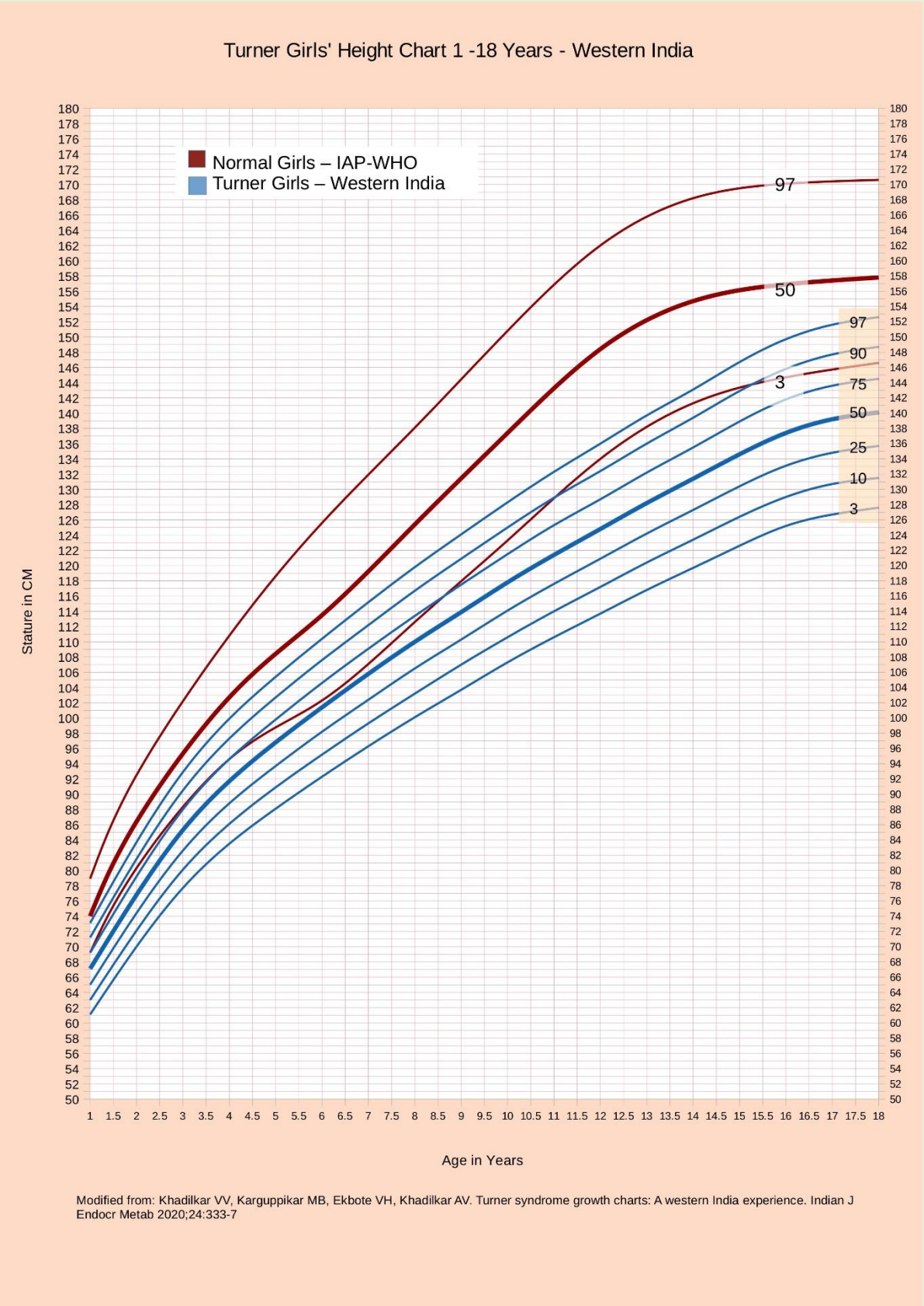


Figure 1: Turner syndrome charts from Western Indian (1-18 years) with standard 7 percentiles in blue colour and in the background IAP-WHO combine charts are shown in brown colour (only 3rd, 50th and 97th percentiles of IAP-WHO charts are shown).

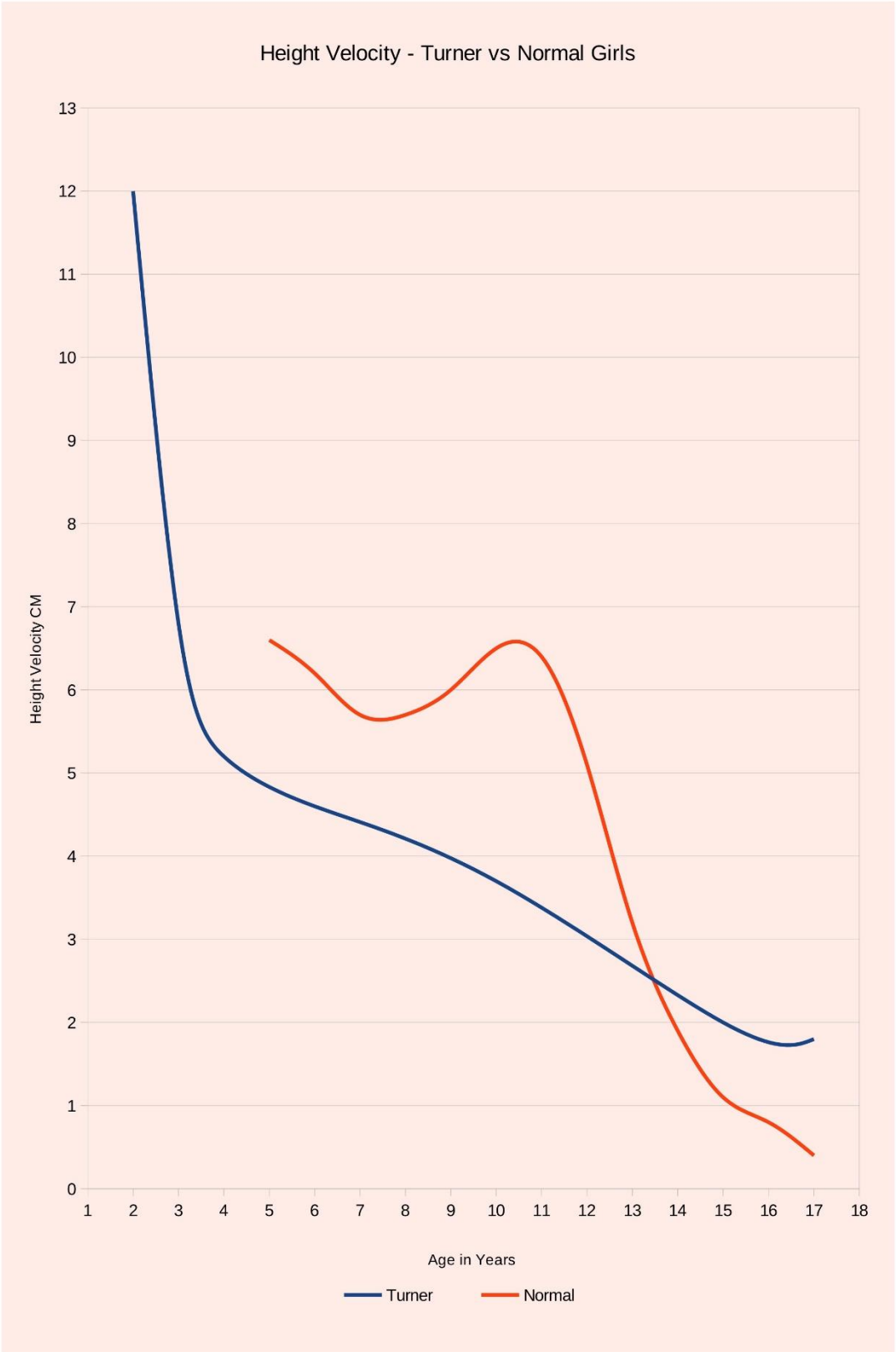


Figure 2: Median height velocity (50th percentile) of Indian Turner Girls (in blue) as compared to median height velocity (50th percentile) of healthy Indian girls (in red).

References

1. Khadilkar VV, Khadilkar AV. Revised Indian Academy of Pediatrics 2015 growth charts for height, weight and body mass index for 5-18-year-old Indian children. Indian J Endocrinol Metab 2015;19:470-6.
2. Khadilkar VV, Karguppikar MB, Ekbote VH, Khadilkar AV. Turner syndrome growth charts: A western India experience. Indian J Endocr Metab 2020;24:333-7
3. Ranke MB, Stubbe P, Majewski F, Bierich JR. Spontaneous growth in Turner's syndrome. Acta Paediatrica 1988;77:22-30
4. Isojima T, Yokoya S, Ito J, Horikawa R, Tanaka T. Trends in age and anthropometric data at start of growth hormone treatment for girls with Turner syndrome in Japan. Endocr J 2008;55:1065-70.
5. Khadilkar V, Khadilkar A, Arya A, Ekbote V, Kajale N, Parthasarathy L, et al. Height velocity percentiles in Indian children aged 5-17 years. Indian Pediatr 2019;56:23-8.

Excerpts from Recent Guidelines

Recommendations for Diagnosis and Treatment of Pseudohypoparathyroidism and Related Disorders: An Updated Practical Tool for Physicians and Patients

Mantovani G, Bastepe M, Monk D, de Sanctis L, Thiele S, Ahmed SF, et al.
Horm Res Paediatr. 2020;93(3):182-196. doi: 10.1159/000508985. Epub 2020 Aug 5.

Compiled by Dr Nikhil Lohiya, Consultant Pediatric Endocrinologist, Jupiter Hospital and D Y Patil Medical Hospital & Research Center, Pune

Clinical Diagnosis and Management

The following major features should be present in order to diagnose a patient with PHP or a related disorder:

- PTH resistance and/or ectopic ossifications, and/or early onset (before age 2y) obesity associated with TSH resistance, and/or AHO.

In addition, other features can be considered as supporting the diagnosis of PHP and related disorders:

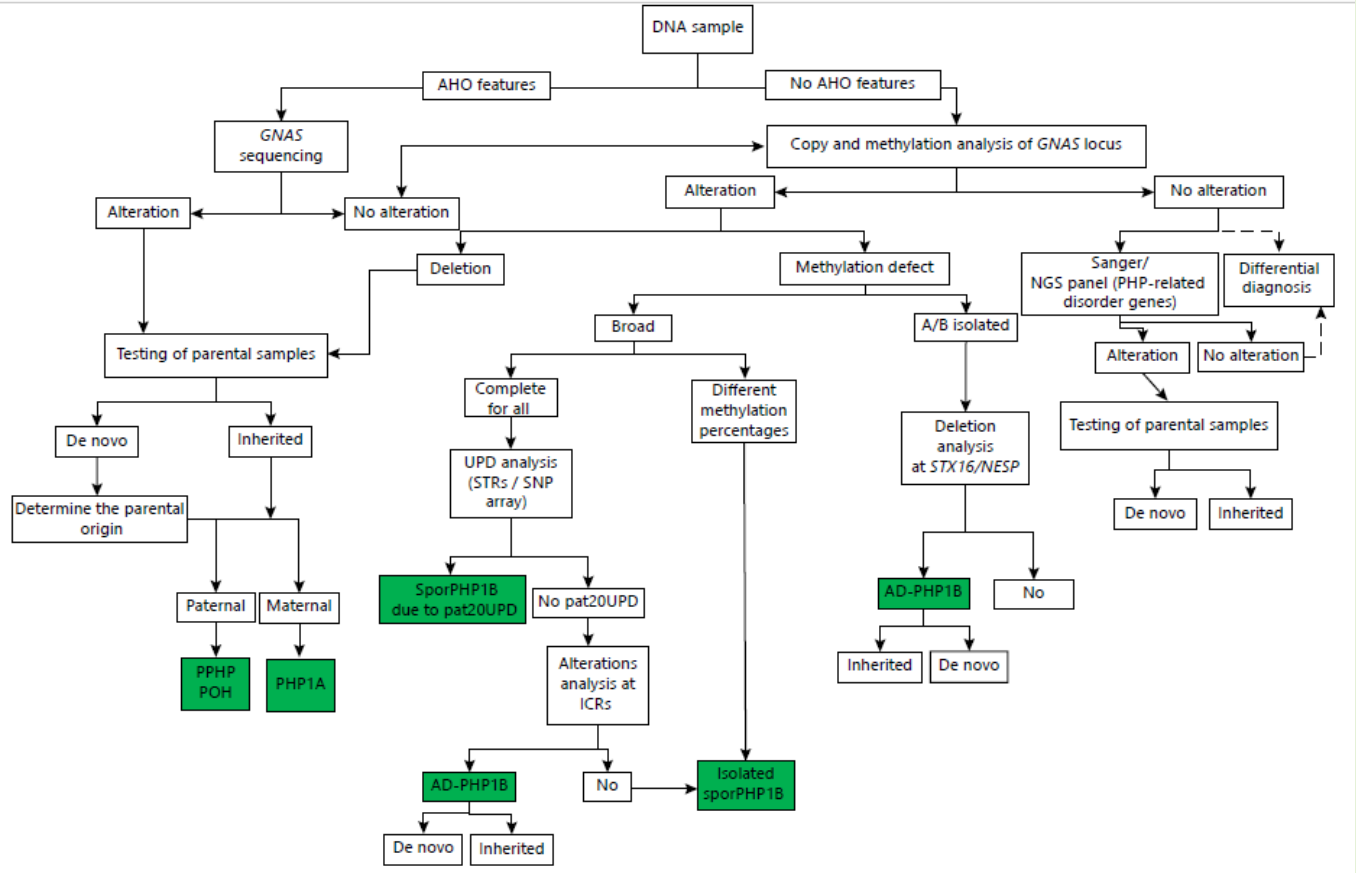
- Unexplained primary hypothyroidism, hypercalcitoninemia, hypogonadism, growth hormone (GH) deficiency, cognitive impairment, hearing impairment, craniosynostosis and neurosurgical features, tooth ankylosis, oligodontia, cataract and/or CNS calcifications, sleep apnea, ear infections, asthma, and restricted fetal growth.

Once clinical suspicion exists, molecular analyses are critically important for genetic counselling and in some cases for diagnosis, particularly when there is significant overlap in clinical features (e.g. PHP1A vs. acrodysostosis). The algorithm is depicted below.

Resistance to PTH

- Defined by the association of hypocalcemia, hyperphosphatemia and elevated serum PTH in the absence of vitamin D deficiency, abnormal magnesium levels, and/or renal insufficiency.
- The screening and follow-up of PTH resistance should include measurement of PTH, 25-OH vitamin D, calcium, and phosphate every 3–6 months in children and at least yearly in adults.
- Frequent monitoring should be done in symptomatic individuals and during acute phases like growth, intercurrent illness, pregnancy and breastfeeding.
- Treatment is with activated form of vitamin D, combined with oral calcium supplements.
- Calcium and phosphorus should be targeted to keep them in normal range avoiding hypercalciuria; PTH levels should be within mid-normal to 2 times of upper limit of normal range.

- When PTH levels have reached twice the upper limit of normal, treatment with active vitamin D analog should be considered, regardless of calcium levels.
- Monitoring of urine calcium levels is recommended at regular intervals during treatment, as well as appropriate renal imaging in patients with persistent hypercalciuria on repeated measurements.
- A brain CT scan is indicated only in the case of neurological manifestations, while systematic and regular ophthalmologic examination is recommended to diagnose or manage cataracts.
- Regular dental reviews every 6–12 months are recommended, at least during childhood.



Molecular algorithm for confirmation of the diagnosis of PHP and related disorders

Ectopic Ossification

- Ectopic ossification should be considered a specific consequence of GNAS molecular alterations, especially when located on the paternal allele.
- Cutaneous bony plaques should be investigated by careful clinical examination at each visit, especially in patients with pathogenic or probably pathogenic variants on the GNAS paternal allele (POH and PPHP).
- Patients and families should be instructed about self-examination. The location and size of the ossifications, involvement of joints and impairment of movement and bone

growth, and evolution during puberty or rapid growth should be documented at each visit.

- Imaging of ossifications should be performed using CT or MRI only, in the case of painful or symptomatic lesions if joint or organ function is being jeopardized, or when considering surgical excision.
- Due to a high risk of recurrence, surgical excision should be limited to well-delineated, superficial lesions causing pain and/or movement impairment.
- In ossifications involving joints, immobilization, e.g. through casts, should be avoided to prevent ankyloses.

Brachydactyly

- Depending on the functional consequences, these skeletal manifestations may require a specific multidisciplinary evaluation and orthopedic corrective surgery.

Management of Growth and GH Deficiency

- The majority of PHP1A and PPHP patients display adult short stature, 2.5 SD below the mean in average, despite having a normal length/height during childhood.
- Most patients with a paternal GNAS pathogenic variant (i.e. patients with PPHP or POH) and patients with acrodysostosis show restricted fetal growth and are thus born SGA.
- Careful and regular monitoring of growth, skeletal maturation and GH secretion is therefore advised in all affected children, starting around the age of 3–6 years.
- As of today, there is insufficient evidence to establish the efficacy and safety of pubertal blockers to increase the final height in these patients.

Obesity

- Patients with PHP1A or PHP1B develop early-onset obesity, usually within the first 2 years of life; this may be the first and only symptom in many patients until the diagnosis is established during adolescence or adulthood.
- Once the diagnosis is made, BMI and eating behavior should be regularly monitored.
- Patients, parents, and families should be provided with psychological support and educational programs as early as possible, even in the presence of a normal BMI, as a preventive strategy, also taking into account the low resting energy expenditure of these patients.
- All patients with PHP and related disorders should therefore be screened for restless sleep, snoring, inattentiveness, and daytime somnolence and, if present, polysomnography is recommended.
- Regular monitoring of blood pressure, lipid profile, and glucose metabolism parameters within the regular multidisciplinary follow-up of patients affected with PHP and related disorders is proposed.

Cognitive Features

- Patients with PHP and related disorders should be referred to a neuropsychologist for neurocognitive and/or behavioral assessment at diagnosis or at preschool age, especially patients with PHP1A and acrodysostosis due to PDE4D pathogenic variants mutations.
- Most patients will require specialized educational assistance.

TSH Resistance

- In children and adults, investigation, monitoring, and treatment objectives do not differ from other etiologies of hypothyroidism/subclinical hypothyroidism, including hypothyroidism related to TSH resistance.

Gonadal Function

- In children with PHP or related disorders, Tanner staging of sexual maturation and testicular descent and location should be regularly assessed.
- As skeletal maturation is typically advanced in these children, bone age should be radiographically determined.
- While biochemical assessment of gonadal status is not recommended unless clinically indicated, cryptorchidism and/or hypogonadism, when present, should be corrected and managed according to standard recommendations.

Other Hormone Resistance

- Screening of additional hormone resistances, and calcitonin measurement, is not recommended in patients with PHP and related disorders, except for diagnostic purposes.

MINI REVIEW

Continuous Glucose Monitoring and Time in Range - A useful tool to evaluate glycaemic control in children with Type 1 diabetes

Authors: Zalak Upadhyay[1], Rakesh Kumar[2]

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Introduction

Self-monitoring of blood glucose (SMBG) is one of the essential components for effective management of Type 1 diabetes Mellitus (T1DM), and this has been the standard of care since decades. SMBG remains the predominant modality of care in low income countries like India, in comparison to continuous glucose monitoring (CGM). But, with increasing use of CGM, new parameters like time in range (TIR) promises to be a useful tool to evaluate glycemic control in children with Diabetes Mellitus. The purpose of this brief narrative review is to offer concise information on TIR and to critically review its clinical application and utility for our fellow Endocrinologists.

From HbA1c to CGM and TIR – choosing the best parameter wisely

HbA1c has been used as a gold standard to evaluate glycemic control, while SMBG has been a cornerstone of diabetes care on daily basis. HbA1c reflects blood glucose concentrations over two to three months and is recognized as the key surrogate marker for the development of long-term diabetes complications (1). However, HbA1c does not reflect glucose variability on daily basis. Further, HbA1c does not distinguish individuals with similar average glycemia but with pronounced differences in hypoglycemic events and/or hyperglycaemic excursions (2,3).Also, it does not provide information about acute glycemic excursions and the acute complications of hypo- and hyperglycemia. The HbA1c is influenced by several conditions that affect the survival of red blood cell (RBC) independent of glycemia, but also by glycation rates, uremia, pregnancy, smoking, and ethnicity. Further, one must wait for 3 months to assess glucose control (with HbA1c) and thus delay in action if it is not in expected range.

The limitations of multiple pricks in SMBG include pain and a single point assessment without evaluation of the complete glycemic profile over 24 hours. SMBG provides a "snapshot" of the glucose values but does not detect fluctuations in between each glucose test. The importance of glycemic variability in determining the quality of life and long-term complications has been evaluated.

Considering the limitations of the HbA1c, a host of alternative glycemic biomarkers have been proposed including fructosamine, glycated albumin (GA), 1,5-anhydroglucitol (1,5-AG)(4).Serum fructosamine and GA have been proposed useful tools for monitoring of short-

term glycemic control, over two to three weeks, which can be used as markers of recent changes in glycemic control (5). They not only reflect glycemic control in hematologic disorder, but also represent postprandial glucose fluctuation. There are also several limitations to the use of serum fructosamine measurements, which includes higher within-subject variation for fructosamine than that for HbA1c and Serum fructosamine must be adjusted for the serum albumin concentration.

Introduction of continuous glucose monitoring (CGM) by measuring interstitial fluid glucose has overcome the deficits in SMBG by providing an overview of the glycemic profiles in patients(2).Both real-time CGM (rt-CGM) and intermittent scan CGM (*is*-CGM) are currently available (6).

CGM has several benefits as it improves glycemic control in terms of improved HbA1c levels, better hypoglycemia detection especially in younger children who are unable to express symptoms of hypoglycemia, reduced hypoglycemic events, reduced glycemic variability, high degree of parental satisfaction, reduced number of painful finger pricks and remote monitoring by the caregivers.

However, most of the existing CGM devices need frequent calibration, using a minimum of 2–5 daily monitored capillary blood glucose, which is painful for children and distressing for the parents (7,8).The other disadvantages include sensor replacement every few days and false alarms (when used with continuous subcutaneous insulin infusion), thus affecting compliance.

The utility of HbA1C is enhanced when used as a complement to glycemic data measured by CGM. Evaluation of CGM metrics is essential to educate and motivate patients with diabetes in clinical practice.

Time in Range

"Time-in-Range" (TIR) is the percentage of time that a person spends with their blood glucose levels in a target range (70-180 mg/dl). Time-in-range can also be understood as "hours per day" spent in-range. For example, 50% time-in-range means 12 hours per day spent in range. The International Consensus Statement on Time in Range (TIR) defined the concept of the time spent in the target range between 70 and 180 mg/dL while reducing time in hypoglycemia, for patients using CGM (9).

The "Time Below Range" (TBR) was divided into (figure 1) *Level 1* (between 54 and 70 mg/dL) which has minor importance in clinical studies. *Level 2* (below 54 mg/dL) has major clinical significance and must be reported. *Level 3* hypoglycemia is considered severe, whenever assistance by third parties is necessary, without a specific value of blood glucose. Hypoglycemic event is considered if lasting at least 15 min (10).

The "Time Above Range" (TAR") or hyperglycemic exposure is expressed as the percentage of time with glucose values > 180 mg/dL. TAR is also divided into three levels (Figure 1) *level 1* (alert level, > 180 mg/dL to < 250 mg/dL), *level 2* (clinically significant, > 250 mg/dL) and *level 3* (clinical diagnosis: ketoacidosis or hyperosmolar hyperglycemic state).

Indeed, targets must be individualized and meet personal needs and circumstances (9,11). An individual using a real time CGM can improve his average TIR over the 24 hours even if he

has lower TIR in say first few hours of the day. Person with T1D with an eye on TIR can strive for improving his TIR on hourly basis thus improving the glycemic control on long-term basis. This is one of the important practical utilities of TIR concept.

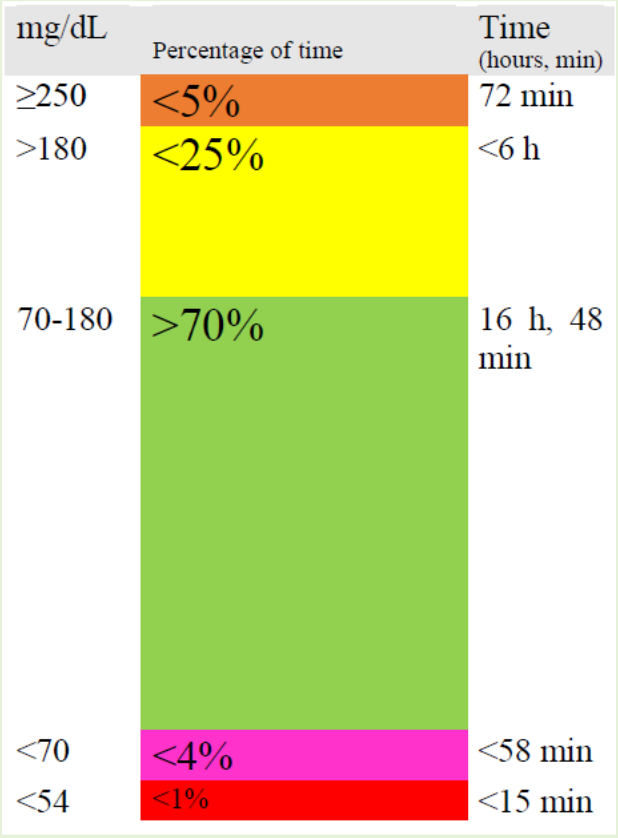

Figure 1. Target percentage of Time-in-range, target sugar levels and target time over 24 hours with a given glucose range. (*If < 25 years old with an A1c goal of 7.5% may use a target of 60%).

As demonstrated by Beck et al. (12), and Vigersky & McMahon (13), even small incremental improvements in TIR yield significant glycemic benefits. This highlights the importance of taking stepwise approach in managing individual for the glycemic goals. Beck et al conducted a study on 545 individuals with T1D on RT-CGM and concluded that that *every 10% increase in TIR reduces HbA1c by 0.5%* **(**12). Whereas Vigersky & McMahon conducted a study on 1137 individuals with T1D and T2D on RT-CGM and concluded that every *10% increase in TIR reduces HbA1c by 0.8%* (13).

Effective use of CGM data to optimize clinical outcomes requires the user to interpret the data and act upon them appropriately. This requires standard metrics/parameters for assessment of glycemic status on CGM.

The list of CGM metrics (Table2) has now been in clinical practice based on the expert opinion of the international consensus group (9). We need to analyse/assess the CGM report (downloads) on these metrics/parameters to be more uniform and objectivein assessment of CGM data.

Table 1: List of metrics to be assessed in a CGM report

1	Number of days CGM worn	Recommended 14 days
2	Percentage of time CGM is active	Recommended 70 % of data from 14 days
3	Mean glucose	
4	Glucose management indicator	
5	Glycemic variability (%CV) target ≤ 36%	Target ≤ 36%
6	Time above range (TAR) LEVEL 2	% of readings and time >250 mg/dL
7	Time above range (TAR) LEVEL 1	% of readings and time 181-250 mg/dL
8	Time in range (TIR)	% of readings and time 70-180 mg/dL
9	Time below range (TBR) LEVEL 1	% of readings and time 54-69 mg/dL
10	Time below range (TBR) LEVEL 2	% of readings and time <54mg/dL

The International Society for Pediatric and Adolescent Diabetes (ISPAD) recommends that for individuals <25 years of age, aim for the lowest achievable A1C without undue exposure to severe hypoglycemia or negative effects on quality of life and burden of care(14). An A1C target of 7.0% can be used in children, adolescents, and adults <25 years old who have access to comprehensive care. However, a higher A1C goal (e.g.7.5%) may be more appropriate in the following situations: inability to articulate hypoglycemia symptoms, hypoglycemia unawareness, history of severe hypoglycemia, lack of access to analogue insulins and/or advanced insulin delivery technology, or inability to regularly check glucose (14). This would equate to a TIR target of 60%. So, in our setting we may accept a TIR of 60% as appropriate, especially in children having less optimal care.

CGM and TIR in Indian scenario:

Though cost seems to be a major concern when it comes to use of CGM in children, as it is not provided by Government and not covered under any insurance schemes, there are *many other reasons* for the restricted use of CGM. One important reason is refusal to wear the sensor, as it was perceived as restriction to physical activity (18) and not wanting to disclose their diabetes status to anybody. The thought of avoiding multiple pricks to children is appealing, but considering cost and discomfort of the sensor, it can be used intermittently in Indian children, to study glycemic variability (18).Further, sticking to the skin could be a problem in tropical countries like ours due to excessive sweating and humidity during major part of the year. Although this has not been reported as a major problem in small studies done in India (18).
Both real time CGMs and intermittently scanned or flash CGMs (isCGM) are currently available.

Real time CGM provides the user with the interstitial glucose values as they become available. These devices include alarms for hypo- and hyperglycemia, rapid rates of glycemic change, and predicted hypo- and hyperglycemia. Users can customize these alarms as per their needs and preferences. Real-time CGM systems can use a device-specific receiver or a smart device to display sensor glucose values. Examples of real-time CGM systems include: Dexcom, Medtronic Guardian. Some of these real-time CGMS can be connected to multiple caregivers via internet on their smart phones providing real time sugar values to multiple caregivers who could be sitting miles away from the CGM user. This function could be especially useful for children in school etc.

*is*CGM systems only display sensor glucose values when the user scans the sensor and do not provide users with alarms for glycemic excursions out of the defined target range. FreeStyle Libre is the only *is*CGM system currently available. Its major advantage is factory calibration and we do not need SMBG to calibrate the CGM. However, SMBG is still required to confirm out of range values on *is*CGM. It is FDA approved for use in children beyond 4 years of age.

Table 2. Comparison of different CGMs available in India

	Guardian link Guardian connect	**FreeStyleLibre Flash glucose monitoring / *is*CGM**	**Dexcom G5 Dexcom G6**
Manufacturer	Medtronic	Abbott	Dexcom
Sensor life	6 days	FDA- 10 days Outside USA- 14 days	7 days
Calibration required	Yes	No	Not for G6
Sensor site	Arms, abdomen, thighs	Arms	Arms, belly, buttocks
Separate transmitter	Yes	No	No
Device worn by patient	Sensor + transmitter	Sensor only	Sensor only
Receiver	Guardian connect- iPod, iPhone	Receiver/ smart phone	Receiver/ smart phone
Reading display	Continuous	Only on scanning receiver	Continuous
Frequency of RBS monitoring	Every 5 minutes	Every 15 minutes	Every 5 minutes
Alerts	Yes	Yes, in Free Style Libre2	Yes
Compatible Apps	Guardian™Connect	Glimp	Dexcom G5 Mobile App
Cloud based data	Guardian connect	LibreLinkUp	Dexcom Clarity
Allowed no. Of followers	5	20	5
FDA approved(Age & Indication)	Mar 12, 2018 All Type 1 and Type 2 Diabetes	February 4, 2016 -CE Mark for 4-17 years FDA approval- FreeStyleLibre2- 17/6/2020 for> 4 years of age	G6- Mar 27, 2018 Both Type 1 and Type 2 DM above 2 years of age
Cost	**Guardian Connect** iPoD-Rs 60000/- Transmitter-Rs 52000/- Sensor- Rs 3250/-	Reader- Rs 4500/- Sensor- Rs 2000/-	Receiver- Rs 45000/- Sensor-Rs 8500/-

A blinded/ retrospective (Professional) CGM is a blinded system used by clinicians for diagnostic or research purpose, usually applied intermittently over a short period of time. The patient does not see his glucose measurements until it is downloaded and provided by healthcare professional. This is intended for prescription use only. It provides health care professionals with sufficient information on glucose excursions and patterns to aid with diagnosis, facilitate changes in therapy. This includes iPro2 (Medtronic) and Libre Pro (Abbott FreeStyle).

A new type of long term implantable (Eversense, Senseonics Inc, Germantown, Maryland) is available for transcutaneous CGM. In Europe, this sensor has been approved for up to 6 months of wear, while in USA it has been approved for up to 3 months duration. However, the need for the implantation and removal through a minor procedure is a significant limitation, particularly regarding its potential application in the pediatric population where there is no data available yet.

Conclusions

CGM is a robust tool which enhances the utility of HbA1c. CGM proves to be a valuable and meaningful tool for better glycemic control. In a RCT from India, addition of intermittent CGM to daily SMBG may help understand continuous glucose trends over days and guide therapeutic modulation in children with T1DM (19).Though it's use has expanded over past few years, the CGM is still in infancy towards wide adoption in India. The understanding of CGM metrics and the idea of better time in range in children with type 1 diabetes mellitus, will prove to be beneficial for a better glycemic control and reduced long-term complications. Although decades of innovation have advanced certain aspects of diabetes management, the economic burden remains high. But the promise which the concept of TIR holds, the use of CGMs should be motivated to have a big impact on daily life with diabetes and better health outcome. In children with type 1 diabetes, who have access to comprehensive care, HbA1c should be targeted less than 7%, with TIR of at least 70 %. Even intermittent use of CGM could be especially useful for learning (of patients and parents) the effect of various foods and activities on the blood glucose. Intermittent CGM could pick up glucose trends over 5-7 days which could guide adjustments in diet, exercise, insulin dose etc over next 3-6 months.

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Pedendoscan

Dr Nikhil Lohiya, Consultant Pediatric Endocrinologist, Dr DY Patil Medical College, Hospital & Research Center, & Jupiter Hospital, Pune

1. Li S, Wang X, Zhao Y, Ji W, Mao J, Nie M, Wu X. Combined therapy with GnRH analogue and growth hormone increases adult height in children with short stature and normal pubertal onset. Endocrine. 2020 Jun 12:1-0.

Study: The objective of this retrospective study was to investigate whether GnRHa combined with recombinant human GH (rhGH) can improve the adult height (AHt) of children with short stature and normal pubertal onset. Patients given GnRHa + rhGH treatment were followed up till they reached AHt. The primary outcomes were the disparity between AHt standard deviation score (AHt SDS) and pre-treatment height SDS (Ht SDS); and the disparity between AHt and target height (THt). Results of 94 patients were included - 49 boys treated for 24.84 ± 13.01 months, and 45 girls treated for 23.89 ± 10.43 months. Before treatment, the Ht SDS of boys and girls was −1.82 ± 1.30 and −1.10 ± 1.61, respectively, and the target height was 168.98 ± 3.51 cm and 157.90 ± 3.25 cm, respectively. After treatment, for boys, the AHt SDS increased by 1.37 ± 1.28 ($p = 0.000$) and the disparity between AHt and THt was 0.98 ± 6.18 cm ($p = 0.273$); for girls, the AHt SDS increased by 1.28 ± 1.48 ($p = 0.000$), and the disparity between AHt and THt was 3.64 ± 4.86 cm ($n = 45$, $p = 0.000$). Subgroup analysis was done comparing idiopathic short stature (ISS) and non-ISS. They showed that for boys with ISS and non-ISS, the AHt SDS increased by 2.00 ± 1.16 ($p = 0.000$) and 0.71 ± 1.06 ($p = 0.003$) respectively, compared with the pretreatment Ht SDS; the disparities between AHt and THt were −0.70 ± 6.54 cm and 2.73 ± 5.37 cm respectively. For girls with ISS and non-ISS, AHt SDS increased by 2.73 ± 1.21 ($p = 0.000$) and 0.748 ± 1.19 ($p = 0.001$), respectively; AHt increased by 2.63 ± 6.12 cm ($p = 0.165$) and 4.02 ± 4.37 cm ($p = 0.000$) compared with THt, respectively. Multiple linear regression analysis showed that the *baseline bone age* (BA) ($\beta = -0.200$, $p = 0.003$), *basal IGF-1*($\beta = -0.002$, $p = 0.008$) and *HtSDS* ($\beta = -0.679$, $p = 0.000$) had negative effects on increment of AHtSDS. The authors have concluded that for adolescents with normal pubertal onset and short stature, with or without ISS, GnRHa + rhGH therapy can effectively improve AHtSDS. After treatment, ISS adolescents can reach THts; non-ISS adolescents can exceed their THts.

Critical Appraisal: It is a study with data for a long duration. The definition of ISS and non-ISS is clearly mentioned. The authors included children without precocious puberty or any pathologic cause of GHD, who has been on combination treatment for > 6 months and have reached final adult height. Children with precocious puberty and those with were excluded. The protocol of treatment is clearly mentioned. Statistical analysis is very clear and seems optimum. The sub-group analysis performed is comprehensive. However, the study design is retrospective. Also, the number of subjects on subgroup analysis gets divided and seems small. Prediction models used for analysis come with their own shortcomings of not being very accurate.

Can the results be applied in our setting? Combination therapy is an area still relatively unexplored in our country, with scarce literature. There have been discussion on use of combination therapy in children with precocious puberty; many centers use it. However, in children with ISS, it is not a prevalent practice. GWAS studies in ISS has shown different mutations leading to short stature. We need well designed studies from cohort of our nation.

2. Sävendahl L, Cooke R, Tidblad A, Beckers D, Butler G, Cianfarani S, Clayton P, Coste J, Hokken-Koelega AC, Kiess W, Kuehni CE. Long-term mortality after childhood growth hormone treatment: the SAGhE cohort study. The Lancet Diabetes & Endocrinology. 2020 Aug 1;8(8):683-92.

Study: The authors presented data from the entire dataset of all eight countries (Belgium, France, Germany, Italy, The Netherlands, Sweden, Switzerland, and the UK) of the Safety and Appropriateness of Growth hormone treatments in Europe (SAGhE) consortium, with the aim of studying long-term overall and cause-specific mortality in young adult patients treated with rhGH during childhood and relating this to the underlying diagnosis. Patients were classified *a priori* based on pre-treatment perceived mortality risk from their underlying disease and followed up for cause-specific mortality. Person-years at risk of mortality and expected rates from general population data were used to calculate standardized mortality ratios (SMRs). The cohort comprised 24 232 patients treated with rhGH during childhood, with more than 400 000 patient-years of follow-up. In low-risk patients with isolated GHD or ISS, all-cause mortality was not significantly increased (SMR 1·1, 95% CI 0·9–1·3). In children born small for gestational age, all-cause mortality was significantly increased when analyzed for all countries (SMR 1·5, CI 1·1–1·9), but this result was driven by the French sub-cohort. In patients at moderate or high risk, mortality was increased (SMR 3·8, 3·3–4·4; and 17·1, 15·6–18·7, respectively).

Mortality was not associated with mean daily or cumulative doses of rhGH for any of the risk groups. Cause-specific mortality from circulatory or hematologic systems was increased in all risk groups. Hence. they concluded that all-cause mortality was associated with underlying diagnosis. In patients with isolated GHD or ISS, rhGH treatment was not associated with increased all-cause mortality. However, mortality from certain causes was increased, emphasizing the need for further long-term surveillance.

Critical Appraisal - This well-designed study with a follow-up for mortality was 96.7% complete excluding Italy. Risk group classification was well defined and statistical analysis was appropriate. This is the largest long-term mortality follow-up study till date. A major limitation was the lack of a control group. Also, the confounding factors were not considered in the analysis. The study group was not homogenous as they included participants from 8 countries, with differing management protocols.

Implication of this research on our understanding- There is no significant increase in overall mortality due to GH treatment: GH seems to be a safe medication.

3. **Soto BJ, Pereira A, Busch AS, Almstrup K, Corvalan C, Iñiguez G, Juul A, Mericq GV. Reproductive Hormones During Pubertal Transition in Girls with Transient Thelarche. Clinical Endocrinology. 2020 May 17.**

Study: The aim was to describe pubertal progression, growth, genotypes, reproductive hormones, and growth factors in girls with TT compared to those who do not present with TT (non-TT). It was a retrospective analysis of 508 girls in a longitudinal population-based study Patients or Other Participants of the Chilean Growth and Obesity cohort. Along with assessing pubertal progression and growth, reproductive hormones, FSH beta subunit/ FSH receptor gene single nucleotide polymorphisms were measured. Results showed that 37 girls (7.3%) presented with TT - they entered puberty by pubarche more frequently (51%) than girls with normal progression (non-TT; n=471; 23%, p=0.005). Girls with TT who were under 8 years old had lower androgens, anti-Müllerian hormone (AMH), LH, and estradiol (E2) (all $p<0.05$) than older girls with TT. At the time of Tanner breast stage 2 (B2), girls with TT had higher androgens, LH, FSH, IGF1, LH, insulin, and E2 ($p<0.01$) than at the time of TT. TT girls were older at B2 (10.3 ± 1.1 vs. 9.2 ± 1.2 years, $p<0.001$) and menarche (12.3 ± 0.8 vs. 12.0 ± 1.0 years, p=0.040) than their counterparts (non-TT). No differences in anthropometric variables or FSHB/FSHR genotypes were detected. The authors concluded that TT is a frequent phenomenon that does not appear to be mediated by hypothalamic-pituitary-gonadal axis activation or by adiposity. Hormonal differences between earlier TT and later TT suggest that their mechanisms are different.

Critical Appraisal: It is a longitudinal data of a large sample, collected and analyzed meticulously, though retrospectively, to address a common and challenging Etiology. The definitions of TT and pubertal assessment are clear; lab assessments were performed with HPLC-MS/MS. The sub-group analysis gives many interesting findings. The limitations are retrospective nature of the analysis: though the data was collected prospectively, it was not primarily designed for this objective. The influence of environmental disrupting compounds has not been taken in account.

Implication of this research on our understanding: Transient thelarche is seen in clinical practice commonly. These girls do need careful monitoring as some of them may eventually get diagnosed as central precocious puberty. Early and late presenting TT needs to be kept in mind while evaluating a patient.

4. Miller BS, Sarafoglou K, Addo OY. Development of Tanner Stage–Age Adjusted CDC Height Curves for Research and Clinical Applications. Journal of the Endocrine Society. 2020 Sep;4(9):bvaa098.

Study: The authors sought to develop new Tanner stage–adjusted height-for-age (TSAHeight) charts accounting for these differences. It was developed from population-based Tanner staging and anthropometric data for 13358 children age 8-18 years from 3 large US national surveys: National Health Examination Surveys (NHES cycle III); the Hispanic Health and Nutrition Examination Surveys (HHANES) and the third National Health and Nutrition Examination Surveys (NHANES III). TSAHeight semi-parametric models with

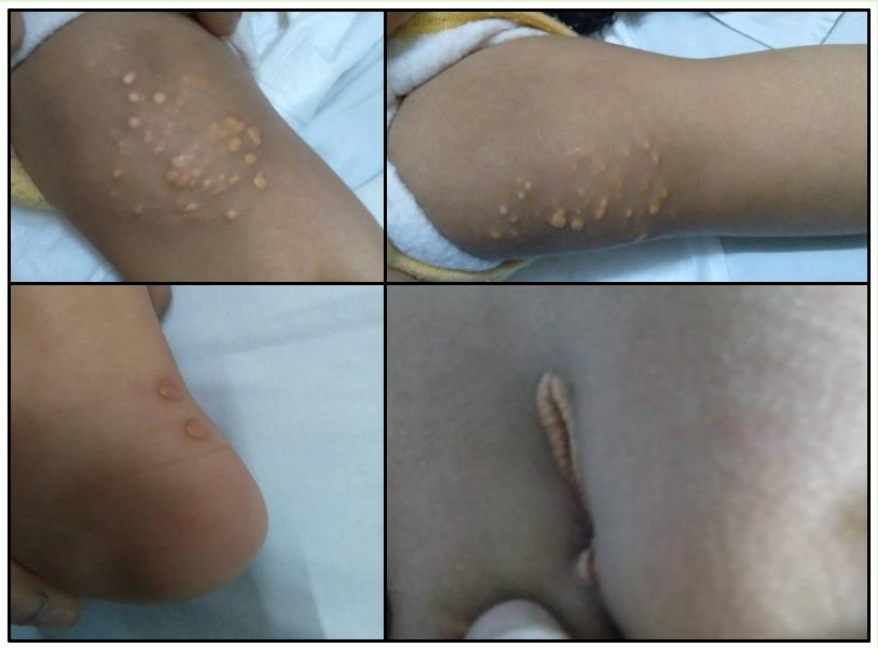
additive age splines were used to develop smoothed TSAHeight curves, accounting for maturation stage and calendar age. As expected, the TSAHeight curves did not track along the respective percentile curves for the CDC 2000 CAHeight curves. They generated race/ethnicity–nonspecific and race/ethnicity–specific TSAHeight charts stratified by sex and plotted against the CDC 2000 CAHeight curves to account for the pubertal status differences between these models. An online calculator to adjust height for pubertal status was created. TSAHeight charts provide a much-needed tool to assess and manage linear growth for US children over the course of puberty. These tools may be useful in clinical management of children with pubertal timing variations.

Critical Appraisal: A novel work with crisp methodology, meticulous analysis and results with nearly 42 diagrams in the Appendix gives us in-depth understanding. The strengths of the study were the large sample size, subset analysis of different races, provision of prediction equation on adjustment with Tanner staging, and also an online tool. Limitations were the pubertal data was cross-sectional; and the overall data is about 2 decades old.

Can it be applied in our setting? Differences in ethnicity and socioeconomic demography might be a major hurdle in using these charts in our country. Growth of Indian children is different from children in Western developed countries. A similar tool, if designed with Indian data, can help in better care of children, especially with pubertal issues.

PHOTO QUIZ

Saniya Gupta, DM (Pediatric Endocrinology) Fellow, Endocrinology and Diabetes Unit, Advanced Pediatrics Centre, PGIMER, Chandigarh



A 3yo girl was admitted in pediatric emergency with congestive cardiac failure; echocardiography showed severe aortic stenosis due to a supravalvular aortic ridge. On examination, she was found to have gradually progressing skin lesions (shown below) for 1.5 years. On evaluation, her 6-month-old younger brother also had similar illness.

Events/Activities organised by ISPAE

Growth symposium, IAP Kerala State, Kozhikode, Kerala: Dr M Vijayakumar

An online growth symposium was conducted as a part of the activities of IAP Kerala, hosted by IAP Kozhikode branch on 16th August 2020 via Zoom platform. Dr PSN Menon, Dr Vijayalakshmi Bhatia, Dr Nalini Shah, Dr M Vijayakumar and Dr Reetha G gave lectures. Dr Riaz I, Dr Sheeja Madhavan, Dr Deepa Anirudhan, Dr Parvathy, Dr Veena Nair, and Dr Abraham Paulose conducted case-based discussions. Dr PSN Menon, Dr V Bhatia, and Dr N Shah were moderators for case-based discussions. Around 400 delegates attended the meeting.

Panel Discussion on "Management of Diabetic Ketoacidosis" by Dr Ganesh Jevalikar

The activity was organised under the Digital IAP platform by the Pediatric and Adolescent Endocrinology Chapter of IAP**.** The panel of Drs Vandana Jain, Tushar Godbole, Sirisha Kusuma (ISPAE members) and Dr Veena Raghunathan (pediatric intensivist), discussed principles of management of DKA in various settings and was attended by 2071 participants across India. The session was moderated by Dr Ganesh Jevalikar (ISPAE member).

Online sessions by Dr Dhivyalakshmi, Chennai:

1. Approach to short stature and growth hormone therapy in children: On 28 June 2020, as a part of monthly CME activity of IAP-CCB, I was invited as a speaker for the topic "Approach to short stature and growth hormone therapy in children". Around 100 delegates (pediatricians and postgraduates) participated.

2. Type 1 diabetes - common issues and management in COVID pandemic: On 31 May 2020, as a part of monthly CME activity of IAP-CCB, I was invited as a speaker for topic " Type 1 diabetes - common issues and management in COVID Pandemic". Around 150 delegates (pediatricians and post graduates) participated.

Pediatric Endocrinology for Postgraduates 2020 (PEP 2020) (Virtual OSCE Workshop)

Organised by Dr Amarnath Kulkarni, Prof P Raghupathy, Prof Preeti Dabadghao, Dr Ahila Ayyavoo and Prof Dr GV Basavaraja on 23 July 2020 on Web Platform Cisco webex under the banner of CIAP, ISPAE & Telangana & AP Pediatric Endocrinologist group, the meeting was sponsored by Pfizer Orbit Limited. This virtual OSCE (objective structured clinical examination) Workshop on Growth & Pediatric Endocrinology was specially tailored for DNB postgraduates appearing soon for their final examination. There were more than 40 OSCE Stations including video sessions, questions and discussions on investigations, drugs, case scenarios, MCQs, growth charts, manned counselling

stations, bedside procedures and techniques of drug administration, etc. by eminent faculty in 8 sessions (15 minutes each). Nearly 800 pediatric postgraduates, teachers, national and international delegates attended the live workshop! Apart from the organisers, the faculty included Dr Leenatha Reddy J, Dr Sirisha Kusuma B, Dr Leena Priyambada, Dr Kavita Sakamuri, Dr Rahul Reddy C, Dr Kishore Baske & Dr Kartheek Nalluri.

Online academic activities by Dr Zalak Upadhyay, Endocare for Kids, Rajkot

1. 16th June 2020: under SPeCS (specialist Pediatrics e-case series) module, a weekly program done by Academy of Pediatrics Rajkot branch, for pediatricians practising in the Saurashtra region, involving all the Pediatric specialties. Topic: Rickets: Vitamin D and beyond. It was done through Zoom, with technical assistance provided by Panacea Biotech.

2. 18th June 2020: Webinar on type 1 diabetes mellitus: sponsored by Sanofi, attended by pediatricians and physicians from all over Gujarat. Topics: Basics of type 1 DM and Insulin therapy (Dr Zalak Upadhyay) and Recent advances in Type 1 DM management (Dr Pratap Jethwani)..

3. 1st July 2020: Webinar by Pfizer through Webex meeting: topic Approach to short stature and it's management, for pediatricians from Saurashtra and Kutch regions.

4. 2nd July 2020: Webinar for post graduate students and faculty of the Pediatric Department at MP Shah Medical College, Jamnagar, done through Go To Meeting platform: case based discussion on Neonatal Endocrinology.

5. 16th July 2020: through the dIAP platform of CIAP, panel discussion on Short Stature, moderated by Dr Ahila Ayyavoo; speakers apart from Dr Zalak were Dr Aashima Dabas, Dr Ankita Maheshwari, and Dr Akanksha Parikh.

6. 18TH July 2020: AOPG (Academy of Pediatrics, Gujarat) CONCLAVE – under SHADE module (a Presidential Action plan 2020 – AOP Gujarat President), Hypothyroidism was presented by Dr Zalak based on slides prepared by Dr Shalmi Mehta and Dr Ruchi Shah. This was done through dIAP platform, by AOP Gujarat, for pediatricians all over Gujarat.

7. 9th August 2020: under Clinical Clues Module, Spots in Endocrinology were included, based on a presentation prepared by Dr Tushar Godbole, to involve pediatricians from Saurashtra and Kutch regions, through the dIAP platform, and later held at various branches. Pre-tests and post-tests for evaluation were included.

8. 11th August 2020: through dIAP platform, by Karnataka State Chapter: a panel discussion on Pediatric Emergencies in Endocrinology, moderated by Dr Ahila Ayyavoo. Speakers apart from Dr Zalak were Dr Anjana Hulse, Dr Vani, and Dr Kumar Angadi.

9. 26th August 2020: case-based discussion on common Pediatric endocrine disorders through Zoom platform, sponsored by Sanofi, by AOP- Bhavnagar branch.

10. 13th September 2020: online session for kids with type 1 DM and their parents, to discuss Diabetes and COVID, through Zoom, with technical assistance provided by Novo Nordisk. As the COVID has created a lot of panic in all, so this session proved to be very beneficial.

Online academic events by Dr Meena Kumari Mohan, Coimbatore, Tamil Nadu

1. 15.07.2020: a webinar was conducted wherein all the moms were encouraged to participate, to talk anything apart from diabetes. Each was requested to talk about at least five points they were proud of about themselves, which included extracurricular activities and hobbies, and to mention issues they felt negative about/ wanted to improve. Most of them talked about their hobbies and extracurricular activities, including tailoring, pottery, painting, and coloring. Tips were given to find ways for them to improve on the so-called "negative" things. Everyone came to know about others' talents and freely communicated with each other on these issues. The 30 families who attended all liked the session very much. **Lessons learnt**: All the families and children with type 1 diabetes have much more to enjoy and do in their lives apart from diabetes. It is essential that while they keep diabetes under control, they continue to enjoy life as much as they can. Diabetes should not stop them what they wanted to do.

2. 22.07.2020: A webinar was conducted on "Stress Management for children and parents". Dr Vanithamani, Director, Faculty of Management Studies, Karpagam College of Engineering, Coimbatore [a parent of a child with type 1 diabetes] was invited to present and conduct the session. 40 families attended. **Lessons learnt**: Stress is experienced by everyone regardless of their age, especially with the Covid pandemic. It is very important to teach stress management techniques to all families and children to deal with diabetes and also other aspects, including Covid.

3. 25.07.2020: A webinar was conducted along with Dr Senthil Senniappan, pediatric Endocrinologist from Liverpool, UK. The 45 families who attended, directly interacted with him and were reassured by the fact they were receiving treatment meeting UK standards. **Lessons Learnt**: All of them were reassured they were receiving treatment at par with UK standards, and exposed to treatment comparable to European Standards. Whatever the mode of insulin delivery, the best treatment can be maintained by adequate and up-to-date education, continuous engagement with medical services, frequent and regular monitoring and commitment towards maintaining a healthy life style.

4. 29.07.2020: A meeting attended by 30 families was held to support parents on effective parenting skills. Different types of parenting were discussed. **Lessons learnt**: Different types of parenting styles exist. Parents should be aware of their style, and that they can shift between different styles depending on the circumstances.

5. 02.08.2020: A joint meeting was held with sponsors for free insulin from the US. Fifteen families from the US and 40 families from India were able to interact with each other. The US people could see where the money they were donating was going. **Lessons learnt**: It is important to maintain transparency in accounts, especially given for charity purposes. It is equally important for the givers and the seekers to meet and interact with each other, so that both of them are happy.

6. 09.08.2020: A meeting was held concentrating on the nutritive value for breakfast for everyone. The 40 families who attended were encouraged to take a photo of their breakfast and post in the group. The nutritive value of every single plate was discussed. The parents were able to update their knowledge on improving macronutrients for all meals, including breakfast. **Lessons learnt**: In type 1 diabetes, we focus so much on insulin and carb counting. It is essential that all the macro- and micro-nutrient needs are met on a daily basis, especially for growing children.

7. 12.08.2020: The next meeting concentrated on the nutritive values of lunch given to children and young people with diabetes. The 40 families were encouraged to send photographs of the lunch they had that day. **Lessons learnt**: It is essential that nutrient needs are met through the day. Even those

missed in one meal should be compensated by the other meal within the day. This is very important for all, including children with diabetes.

8. 20.08.2020: This special meeting was arranged for children on pumps and CGMS. The tracings were put in the WhatsApp group, and discussed by everyone. In this way, everyone was able know how the others was managing with the pump effectively. This was well received by about 30 families. **Lessons learnt**: Maximum time in target can be maintained by the use of insulin pumps along with CGMS. The more we monitor the more were able to make things better for type 1 children.

9. 25.08.2020: The next session, attended by 38 families, was held on exercise and diabetes. All the children were encouraged to mention what exercise each did on a day to day basis, so everyone came to know how much and what type of exercises others were doing. The plan was to club one highly motivated and one unmotivated child with one another. **Lessons learnt**: Clubbing differently motivated children could improve the motivation levels of all children. They are happy to accept motivation techniques from other children rather than their parents. I clubbed children of similar age and sex so that they can mingle with each other for the betterment of both of them.

10. 31.08.2020: A session was held on sleep behavior in children, especially in the Covid era. It was realised many of them woke up late and did not have time to exercise in the morning. The advantages of healthy sleep pattern were discussed. 40 children and families were benefited. **Lessons learnt**: Good sleep patterns are essential for stress-free life for all us, including children with type I diabetes.

11. 19.07.2020: I participated in the growth and puberty workshop as part of National virtual meeting called iPractical Pediatric Endocrinology. Pediatricians and pediatric trainees from the whole of India had attended.

12. 18.08.2020: I did a webinar for general practitioners on day to day management of type 1 diabetes. The importance of carb counting, ISF, ICR, etc was discussed. About 20 doctors attended.

13. 14.09.2020: I did a training session on Day to day management of type 1 diabetes, for the diabetes counselors from Sanofi. 45 of them attended and it was well received. **Lessons learnt**: The importance of plotting growth in the growth charts and analyzing them during each visit was emphasized.

Online academic activities by Professor Sangeeta Yadav, New Delhi

1. Webinar: 27th April 2020: educational interactive session titled “Is my child growing normally?” was conducted as a part of the Indian Academy of Pediatrics – dIAP Interactive for Parents.
2. Webinar 23rd May 2020: titled “Should I be concerned about my Overweight Teen?” by Adolescent Health Academy, Nagpur and Academy of Pediatrics, Nagpur.
3. Webinar 27th June 2020: titled “Is my Child growing too fast?“ & “Is my child lagging behind in Growth?” by Adolescent Health Academy, Nagpur and Academy of Pediatrics, Nagpur.
4. FOGSI international Adolescent E-conference on 28-30 August 2020. Panelist: PCOS in Adolescents
5. A lecture on Covid 19 and Adrenal Disease during the National Symposium on Growth Pediatric and Adolescent Endocrinology (GHRS Meet): 12-13th Sept. 2020 at New Delhi.

AWARDS & Recognitions

Dr Rakesh Kumar (Division of Pediatric Endocrinology and Diabetes, PGIMER, Chandigarh) has been awarded **ISPAD's Allan Drash Clinical Fellowship for 2020**. Out of the 10 awardees for this prestigious ISPAD's Fellowships, 4 are from India. Other 3 awardees are Dr Apoorva Gomber (New Delhi), Dr Manisha Gupta (Kanpur), and Dr Peerzada Ovais Ahmad (Srinagar, J & K). As part of the Fellowship, the awardees will be sponsored by the ISPAD to visit any of the ISPAD nominated centres in the world for 6 weeks.

ANSWER TO PHOTOQUIZ

Familial hypercholesterolemia (FH)

In view of presence of xanthomas, with aortic stenosis and a significant family history, a clinical possibility of familial hypercholesterolemia (FH) was kept.

FH is the most common disorder of lipoprotein metabolism, with an autosomal dominant mode of inheritance. The defect in LDL metabolism is due to one of three common mutations - namely in LDL receptor (LDLR), apolipoprotein B (Apo B) or proprotein convertase subtilisin/ kexin type 9 (PCSK9) genes. These result in elevated LDL cholesterol (LDLc) levels and premature coronary artery disease. Nearly 50% of first degree relative can have elevated LDL. Those with homozygous defect have LDLc >500mg/dl, skin lesions (tendon xanthomas, xanthelasmas and /or corneal arcus) appearing at an early age, premature atherosclerosis and coronary artery disease developing before and just after puberty. Heterozygous patients have milder phenotype with symptomatic coronary artery disease developing after pediatric age.

The diagnosis is confirmed by genetic testing. A detailed cardiovascular risk assessment should be done in all patients.

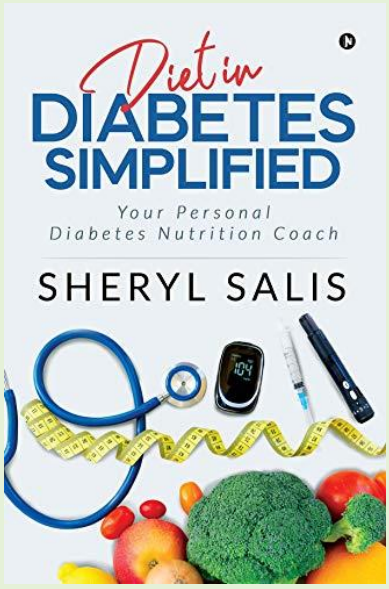
The index girl had elevated levels of total cholesterol (TC: 905 mg/dl) and LDLc: 856 mg/dl). She had atherosclerotic plaques in the descending thoracic and abdominal aorta on CT angiography. The family screen showed raised levels in the mother (TC 334 mg/dl, LDLc 241 mg/dl) and her younger brother (TC 897mg/dl, LDLc 774 mg/dl). These findings strongly supported the diagnosis of FH, further confirmed by genetic testing, which showed a homozygous defect of ApoB.

Treatment of FH mainly aims at reducing LDLc levels. Diet and lifestyle modification are emphasized but seldom beneficial. Medical therapies include statins, fibrates, anti- PCSK9 antibodies and selective lipoprotein apheresis.

Information on Upcoming important Conferences

1. 46th ISPAD Annual Conference will be "virtual": 15-17 October 2020. It will be in a different format to the previously planned meetings. Visit 2020.ispad.org to remain informed. Registrations are open.
2. Pediatric Diabetes Update (Online) 21-22 Nov 2020.
3. 59th ESPE Meeting, at Liverpool, UK, will now be held on 7-9 May 2021.
4. ISPAE-ISPAD Midterm Meeting 2020, Chandigarh postponed to 2022.
5. 11th APPES Biennial Scientific Meeting & Fellows' School: postponed to Nov 2021.
6. 54th Annual JSPE Meeting postponed (new date to be announced).

Book Review



"Diet in Diabetes Simplified" is written by Ms. Sheryl Salis, dietician and diabetes educator, published 2020, for patients and families with type 1 or type 2 diabetes, but it is useful for all medical and paramedical health care providers who want to do justice to their patients. The contents reflect the author's familiarity with the life of people living with diabetes, of insulin – the types, the profiles and regimens, especially insulin pumps – and of hypoglycemia and the relationship of exercise with blood glucose excursions. Though full of knowledge, the book is not a ponderous text, but as an easy read, replete with illustrations for every concept.

The basics of nutrition, as well as information about glycemic index and glycemic load are explained with practical examples. The chapter "Get Label Wise" highlights marketing gimmicks versus authentic information. "Eating Out Options" is a useful chapter for upper socio-economic group patients (and a very handy tool in the life of the busy doctor!).

And what would a Diet book be without recipes? "Smart Cooking" and "Healthy Recipes" empower smart parents who are willing to go extra mile for their children's food choices rather than restricting them to orthodox "diabetic diets". The chapter "Superfood" reminds us of what our grandparents eat for good health even if they do not have diabetes. It contains useful information on some low glycemic index, high fiber foods, and emphasizes our traditional foods in this western looking era. A detailed chapter on gestational diabetes (and a tiny one on hyperuricemia) are value additions for colleagues who see adult as well as pediatric patients.

We have reserved the gems for the last. With our patients now trying to get below an HbA1c of 7 %, with low glucose variability, and some having access to real time CGMS, carbohydrate counting, I:C ratio and ISF are more often in the vocabulary of our discussions with patients now. These concepts have been conveyed in a reader-friendly manner, with plenty of real-life examples and illustrative calculations.

At the price of Rs 625 (available online), it is a valuable resource using Indian foods and Indian real-life examples, FAQs and answers.

Dr Lokesh Sharma and Dr Vijayalakshmi Bhatia, SGPGIMS, Lucknow

PDU2020 ONLINE

ISPAD
International Society for Pediatric and Adolescent Diabetes

PEDIATRIC DIABETES UPDATE - 2020

Under the banner of Indian Society for Pediatric & Adolescent Endocrinology (ISPAE)

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- Closed loop insulin pump therapy
- Telemedicine in type 1 diabetes
- Psychological aspects of type 1 diabetes

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PROF. PEDIATRICS-ENDOCRINOLOGY, SECTION HEAD, ENDOCRINOLOGY UNIVERSITY OF COLORADO SCHOOL OF MEDICINE
MEDICAL DIRECTOR, CHILDREN'S HOSPITAL COLORADO CLINICAL & TRANSLATIONAL RESEARCH CENTER

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STANFORD HOSPITAL AND CLINICS, LUCILE PACKARD CHILDREN'S HOSPITAL

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PEDIATRIC ENDOCRINOLOGY UNIVERSITY OF COLORADO DENVER

Dr. Katarzyna Gajewska
HRB PhD Scholar in Population Health & Health Service Research
Dublin, Ireland

REGISTRATION DETAILS WILL BE SHARED SHORTLY