POSTER PRESENTATIONS

GROWTH HORMONE / GROWTH

PP-GH-01

THE ROLE OF GROWTH HORMONE IN MAINTAINING PANCREATIC ISLET MORPHOLOGY

https://doi.org/10.15605/jafes.037.AFES.85

Mayumi Ishikawa,[1,2] Junko Toyomura,[3] Takashi Yagi,[1,2] Yusuke Taguchi,[4] Yuka Toyoshima,[5] Toshiaki Tachibana,[6] Hitoshi Sugihara,[1] Shiro Minami[2]

[1]Department Of Endocrinology, Metabolism and Nephrology, Nippon Medical School, Tokyo, Japan
[2]Center of Endocrinology, Diabetes and Arteriosclerosis, Musashikosugi Hospital, Nippon Medical School, Kawasaki, Japan
[3]Laboratory of Clinical Regenerative Medicine, Department of Neurosurgery, Faculty of Medicine, University of Tsukuba, Tsukuba, Japan
[4]Research Team Specialist, Application Support Group, BD Life Sciences – Biosciences, Nippon Becton Dickinson Company, Ltd., Tokyo, Japan
[5]School of Agriculture, Utsunomiya University, Utsunomiya, Japan, [6]Core Research Facilities, The Jikei University School of Medicine, Tokyo, Japan

OBJECTIVES
Endoplasmic reticulum stress (ER stress) is one of the causes of decreased insulin secretion with aging. Since growth hormone (GH) secretion decreases with age, we hypothesized that decreased GH was related to ER stress. We investigated islet structure in GH-deficient spontaneous dwarf rat (SDR), and GH effects in BRIN-BD11 cells derived from rat pancreatic β-cells.

METHODOLOGY
Overnight fasted 6- and 12-month-old male SDR and normal Sprague Dawley rats were used for collection of blood and pancreas samples. The mRNA expression of X-Box binding protein-1 (xbp-1), which is implicated in ER stress, was measured in BRIN-BD11 cells with or without GH treatment.

RESULTS
Serum concentration of glucose and proinsulin were higher in 12-month-old SDR than in age-matched normal rats. Islet structures of normal rats were oval, but the structures of 40% of islets were disrupted in 12 month-old SDR. The mRNA level of XBP-1 spliced form in the pancreas was increased with aging in normal rats, but not in SDR. Most XBP-1 antibody positive cells were in islets, and the positive cell number in islets was lower in 12 month-old SDR than in age matched normal rats. GH treatment increased mRNA levels of XBP-1s in BRIN-BD11 cells.

CONCLUSION
XBP-1 is known as the key factor in the unfolded protein response (UPR) following ER stress, and the UPR has been implicated in insulin secretion and β-cell survival. Our data suggested that GH might have a role in maintaining islet structure by increasing XBP-1 expression in β-cells.

PP-GH-02

ESTABLISHMENT OF GROWTH VELOCITY CHARTS FOR ASIAN INDIAN CHILDREN

https://doi.org/10.15605/jafes.037.AFES.86

Gayatri Sabinkar,[1] Vijaya Sarathi HA,[2] Dileep Kumar[1]

[1]Narayana Medical College, Nellore, India
[2]Bengaluru, India

OBJECTIVES
Height velocity is a crucial anthropometric parameter for the evaluation of mild or recent onset short stature. The WHO recommends updating the growth references every decade. There is no data on height velocity among South Indian children. We therefore undertook this study to establish the normative data.

METHODOLOGY
This prospective longitudinal study included 3,327 apparently healthy children aged 3 to 18 years from government and private schools of Krishna district, Andhra Pradesh. Height and weight were measured at baseline and at three monthly intervals for one year (October 2018 to October 2019).

RESULTS
Age- and sex-specific height velocity percentiles were generated. The data was available in 1,627 boys and 1,700 girls. The mean peak height velocity was 7.18 ± 2.56 cm in boys observed at 12-12.9 years and 5.8 ± 2.56 cm in girls at 10-10.9 years.

CONCLUSION
Normative height velocity data for South Indian children has been presented. This is the first large scale study from South India evaluating height velocity data for children aged 3 to 18 years. The database for the study was derived from a heterogeneous population, by including children from rural and urban areas, thereby representative of data from diverse socioeconomic backgrounds. These charts can, therefore, be applied to the economically deprived and privileged alike, because a significant proportion of children catered to by paediatricians/endocrinologists in public hospitals belong to the former group.

PP-GH-03

ACHIEVING EQUILIBRIUM — GROWTH HORMONE (GH) DYSFUNCTION, THERAPY AND OBJECTIVE MEASUREMENT OF OUTCOME

https://doi.org/10.15605/jafes.037.AFES.87

Ummul Mahfuza, Harpreet Kaur, Antonio Di Ieva, Veronica Preda
Macquarie University Hospital, 2 Technology Place, Macquarie University, Australia

INTRODUCTION
Growth hormone (GH) derangement can impair physiological function and patient's quality of life (QoL). Until recently adult GH deficient (AGHD) patients have been undertreated in Australia due to prescribing cost limitations. Due to the relative rarity, adult acromegalic (AA) patient data has not been well documented across these domains.

This study aims to contribute to the clinical understanding of GH deficient and excess states once GH levels are normalised with therapy.

METHODOLOGY
This is a single-centre, mixed methods study and chart review (2012 to April 2022) of 28 AGHD and 15 AA patients enrolled from Macquarie University Pituitary Clinic. Diagnosis, work-up and management of the cause of AGHD or AA was as per the Society guidelines.

Clinical and psychosocial measures were taken at baseline and at each follow-up consultation. The primary outcome measure was insulin-like growth factor-1 (IGF-1). Secondary outcome measures included fasting blood glucose (FBG), glycated haemoglobin, lipid profiling, weight, body composition by SOZO bioimpedance (Impedimed) and QoL.

RESULTS
AGHD patients achieved normalisation of IGF-1 on therapy to the mid-upper range of normal. In AA patients, 85% achieved normalisation of IGF-1 on therapy. AGHD demonstrate improved metabolic profiles (lipid and glycaemic control), body composition, bone mineral density (BMD) and QoL with normalisation of GH levels, in keeping with the evidence base for pharmacotherapy. At the other end of the spectrum, AA patients, coming from excess status to normalisation of GH levels, had improved metabolic parameters, body composition and QoL. Untreated patients did not have any improvement across different parameters.

CONCLUSION
GH dysfunction has significant impact on patient well-being across multiple domains. Therapy reverses the deleterious clinical and psychosocial effects of GH dysfunction and successfully restores physiological equilibrium of the GH axis. Large long-term cohort follow up is needed to add to the literature.