INTRODUCTION: Craniopharyngioma is an embryological, suprasellar tumour with low grade malignancy. Incidence is between 1.1-1.7 cases/million/year, with 30-50% diagnosed in childhood or adolescence. The long-term sequelae include hypopituitarism, visual impairment, and obesity. Hyperphagia and obesity in young people with craniopharyngioma causes substantial personal and parental distress, and the degree of obesity is positively correlated with extent of hypothalamic damage. Yet, there is little research to date aimed at understanding eating behaviour in craniopharyngioma. This ongoing feasibility project aims to address this evidence gap to inform future interventions. The project includes a series of measures of eating behaviour, functional magnetic resonance imaging, energy expenditure, and assesses acceptability of participation in the research. This abstract focuses on hyperphagia.

METHODS: To date, eight patients with childhood-onset craniopharyngioma (50% female; mean age = 15.5 years, SD = 5.0; mean Body Mass Index Standard Deviation Score [BMI SDS] = 1.7; SD = 1.8) have been recruited. Patients or their parents completed the Hyperphagia questionnaire (Dykens et al., 2007, Obesity, 15, 1816-26). Patients were given an *ad libitum* lunch, comprising a range of hot and cold, sweet and savoury food and drink items. Hyperphagia subscale scores were summarised and Spearman's rank correlation was calculated between hyperphagic behaviour, BMI SDS and energy intake (kcal). Null hypothesis testing is not reported due to the sample size in this feasibility study.

RESULTS: Mean subscale scores on the Hyperphagia questionnaire were calculated (behaviour = 11.75, SD = 6.6; drive = 11.0, SD = 5.6; severity = 4.25, SD = 1.5). Hyperphagic subscale scores were positively correlated with BMI SDS (behaviour: rs = 0.6; drive: rs = 0.6; severity: rs = 0.3) and energy intake (behaviour: rs = 0.5; drive: rs = 0.6; severity: rs = 0.8).

CONCLUSION: These preliminary results suggest that patients with craniopharyngioma do experience hyperphagic behaviour and that their experience is comparable to the scores seen in patients with Prader-Willi syndrome, for whom this questionnaire was originally designed. Hyperphagic behaviour related to both energy intake at a single meal and BMI SDS, confirming that novel interventions to limit this behaviour would be beneficial.

EP-508 | Long-term effects of a primary weight gain prevention intervention among healthy weight obesity susceptible children: Results from the Healthy Start study

N.J. Olsen; S.C. Larsen; B.L. Heitmann

Research Unit for Dietary Studies at the Parker Institute, Bispebjerg and Frederiksberg Hospital, Frederiksberg, Denmark

INTRODUCTION: Primary prevention is a public health strategy that surprisingly hitherto has not been applied in obesity prevention research. The aim of this study was to examine the long-term effects of the Healthy Start primary obesity prevention RCT that was conducted among children susceptible to develop obesity, but yet with healthy weight.

METHODS: The intervention included individual guidance on healthy dietary and physical activity habits, sleep habits, and reducing stress in the family. Children were 2-6 years at enrollment and the intervention lasted 1.3 years on average. At baseline, we included 271 children in the intervention group, 272 children in the control group, and 383 children in a shadow control group, who was observed, only. Information on height and weight in the shadow control group was obtained from national registries, while project staff measured height and weight in the intervention and control groups.

After the intervention was completed, height and weight development at school entry was obtained from the Danish Children Database when children were around 7 years. The average follow-up time in this study was 2.7 years after the baseline examination.

Linear regression analyses on annual changes in BMI (δBMI) and BMI *z*-scores (δBMIz) were performed on children who completed the intervention (n = 652). Analyses were adjusted for gender, baseline age, and outcome baseline value.

RESULTS: No significant differences in weight development between the three groups were observed at the end of the intervention. Similarly, 2.7 years after the baseline examination, no differences were observed between the intervention and control group in δBMI (β = 0.05 [–0.06; 0.15], p = 0.42) or δBMIz (β = 0.03 [–0.05; 0.11], p = 0.45). Likewise, no differences were observed between the intervention and shadow control group in δBMI (β = –0.05 [–0.16; 0.05], p = 0.32) or in δBMIz (β = –0.03 [–0.10; 0.04], p = 0.41).

CONCLUSION: No long-term effects of the intervention were observed on BMI or BMIz. These results suggest that we are still far from understanding how to prevent the primary drivers behind weight gain in children, and still in urgent need of more weight gain interventions conducted among healthy weight children.

EP-509 | Relationship between educational level and incidence of obesity among adults in Abeokuta, Ogun State, Nigeria

A.S. Adeniyi

SAM Obesity Consult, Abeokuta, Nigeria

INTRODUCTION: Changes in educational levels, incomes, composition of diets and activity patterns are crucial contributory factors that explain the rise in the incidence of obesity globally. Educational levels in rural and urban areas are associated with increase in income and occupational patterns. This study characterized the impact of education as a domain in which people are

disadvantaged with obesity, by examining the relationship between educational level and the incidence of obesity among adults in Abeokuta, Ogun State, Nigeria.

METHODS: A total of 240 respondents were selected from two different localities, i.e., rural and urban, with their ages ranging from 20 to 64 years. The educational level details were obtained based on the personal information given. The prevalence of obesity was determined using the Body Mass Index (BMI) cut-off (≥30 kg/m^2) to estimate those obese. The data were analyzed using descriptive and correlative parameters to demonstrate the influence of educational level and its resultant effect on income level and incidence of obesity across the sampled population.

RESULTS: The results showed the highest level of obesity among the rural males of lower educational status, which was attributed high starchy foods intake and sedentary lifestyles. Adjustments were made to establish relationship between educational attainments and BMI graphically. There was strong and direct association between the educational level and the BMI.

CONCLUSIONS: The finding affirmed that educational level determines the income level and obesity mostly among the urban population. This also revealed that as educational level increases, income increases, and shifts in high caloric (western diets) intake making the BMI to increase proportionally. Findings of this nature can further provide functional insights into some socioeconomic developments that can help to overcome obesity epidemic.

REFERENCES

Castelli DM, Hillman CH, Buck SM, Erwin HE. Physical fitness and academic achievement in 3rd and 5th grade students. *J Sport Exerc Psychol*. 2007;*29*:239-252.

Office of the Surgeon General. *The Surgeon General's call to action to prevent and decrease overweight and obesity*. Rockville (MD): Office of the Surgeon General; 2001.

WHO Expert Committee on Physical Status. : The use and interpretation of anthropometry. Geneva, WHO, 2000. Technical Report 894.

StataCorp. *Stata Multiple-Imputation Reference Manual Release 13*. College Station, TX: StataCorp LP; 2013.

World Health Organization. BMI classification. 2018. http://apps.who.int/bmi/index.jsp?introPage=intro_3.html. Accessed 20 Mar 2018.

Cohen AK, Rai M, Rehkopf DH, Abrams B. Educational attainment and obesity: A systematic review. *Obes Rev*. 2013;*14*:989–1005.

Adekoya AS, Mafimidiwo OA, Oyeleke FO. Independent Effect of Income and Energy Intake on Obesity Among Nigerian Adults Population of Abeokuta, Ogun State, Nigeria. *EC Nutrition Journal*. 2019, *14*(12): 1-9.

EP-510 | Association of high-density lipoprotein cholesterol categories with the risk of cardiovascular diseases and mortality: A nationwide cohort study

G. Nam[1]; S. Kim[1]; Y. Huh[2]

[1]*Department of Family Medicine, Korea University, Seoul, Korea;*
[2]*Department of Family Medicine, Asan Medical Center, Seoul, Korea*

INTRODUCTION: The association of low high-density lipoprotein cholesterol (HDL-C) with the development of cardiovascular diseases (CVDs) and all-cause death is unclear. We sought to determine whether low HDL-C and its subgroups are associated with the risk of CVDs and all-cause death using nationwide cohort data for South Korean population.

METHODS: Health checkup data of 9,342,337 individuals aged ≥20 years provided by the National Health Insurance Service (NHIS) of South Korea between January 1, 2009, and December 31, 2009, were included. Study participants were followed up until December 31, 2015 and the mean follow-up duration was 6.3 years. The hazard ratios (HRs) and 95% confidence intervals (CIs) of myocardial infarction (MI), stroke, and all-cause death were estimated using a multivariable Cox proportional hazards regression analysis.

RESULTS: During follow-up, MI, stroke, and all-cause death occurred in 63,402; 89,249; and 193,333 patients, respectively. Individuals with low HDL-C showed an increased risk of CVDs and all-cause death compared with individuals with normal HDL-C, even after adjusting for potential confounders (model 3; HR, 95% CI: 1.21, 1.19-1.24 for MI; 1.13, 1.11-1.14 for stroke; 1.17, 1.16-1.19 for all-cause death). Compared to normal HDL-C group, non-isolated low HDL-C was associated with increased HRs of CVDs and all-cause death (model 3; HR, 95% CI: 1.31, 1.29-1.34 for MI; 1.17, 1.15-1.19 for stroke; 1.09, 1.07-1.10 for all-cause death); isolated low HDL-C group was associated with increased HRs of incident stroke and all-cause mortality (model 3; HR, 95% CI: 1.04, 1.01-1.07 for stroke; 1.35, 1.33-1.37 for all-cause mortality).

CONCLUSION: This large-scale cohort study suggests that low HDL-C and non-isolated low HDL-C may be risk factors of CVDs and mortality and even isolated low HDL-C is also associated with higher risk of stroke and all-cause death.