Le Bonheur Children's Hospital: Pediatric Obesity Program

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Le Bonheur Children's Hospital, Pediatric Obesity Program, *Memphis TN*
Funded by CHW under the Health Grand Challenges program

Introduction

•Pediatric obesity is a major concern in the US, with its prevalence tripling since the 1970s

•The Pediatric Obesity Program investigates genetic and environmental causes for obesity, as well as potential treatments to address it

•The Healthy Lifestyles Clinic is an interdisciplinary clinic to treat children and adolescents with obesity

Objective of Internship

To better understand interdisciplinary care and translational research, particularly in the field of childhood obesity and its causes.

Work profile

•Conducted independent project involving Taqman genotyping assays for obesity-associated SNPs in patients

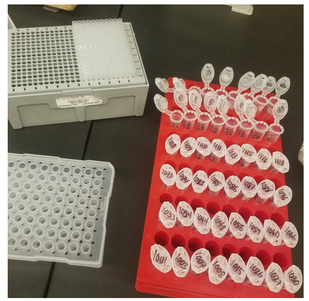
•Shadowed in the Healthy Lifestyle Clinic and Endocrine Clinic

•Volunteered in pilot cooking class program (SNACK) in the HLC

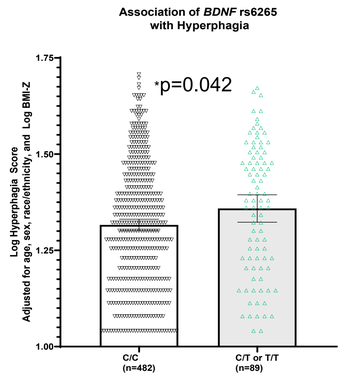
Research Project: Associations of *FTO* and *BDNF* Genotypes with Dietary Intake in Children with Obesity

Objective: Determine if SNPs in the *BDNF* and *FTO* genes are associated with worse obesity and/or higher dietary intake

Methods: 573 youth from the Healthy Lifestyle Clinic were genotyped using TaqMan SNP assays for *FTO* rs9939609, *BDNF* intronic rs12291063, and BDNF Val66Met rs6265. Appetite and dietary intake were assessed using the Dykens Eating Behavior Questionnaire and the Block Food Frequency Questionnaire. Differences in dietary intake by genotype were assessed by ANCOVAs in SPSS adjusting for age, sex, race, and BMI.



Laboratory set up for Taqman genotyping



Sample graph from statistical analysis associating food frequency and BMI with genotype

Results: *FTO* rs9939609 minor *A* allele was associated with increased BMI in females (p=.03). *BDNF* rs6265 minor *T* allele was associated with increased hyperphagia (p=.04). *BDNF* rs6265 *T* allele was associated with higher BMI only in African Americans (p=.01). Carriers of *BDNF* rs6265 *T* allele (p<.05) and *FTO* rs9939609 *A* allele (p=.03) reported higher cheese intake. Carriers of minor *BDNF* intronic rs12291063 *C* allele reported higher fried chicken intake (p=.002).

Conclusion: Genetic factors may predispose children with obesity to greater appetite and increased consumption of higher fat foods, and therefore may be beneficial to consider for individualized weight management

Clinical Experience and Volunteering: Healthy Lifestyle Clinic

- shadowed patient as they met with various providers, including an exercise physiologist, dietician, behavioral health counselor, medical provider, and social worker
- observe how the clinic provided solutions that fit within the financial and circumstantial needs of the patients with deeply personalized and individualized weight management care
- Taught patients basic cooking skills and assisted in finding and making healthy and cheap recipes in the SNACK program

Cooking in the pilot SNACK Program in the HLC

Future Research

- See if there is a connection between genotype and success in weight management program
- Explore association between food preference and MC4R, an strongly obesity associated gene

Conclusion

The Healthy Lifestyle Clinic at Le Bonheur provides highly individualized and specialized care for each patient, supplemented by clinical research. This internship further solidified my interest in medicine and in pursuing research that translates to improved patient care

Acknowledgements

I'd like to thank the Healthy Lifestyle Clinic for allowing me to intern with them, and Dr. Joan Han for being an amazing mentor and teacher. Thank you to Dr. Clint Kinney and Amanda Stayton for being wonderful advisers in the laboratory. Finally, I'd like to thank the CHW for sponsoring this internship through the Health Grand Challenges program.