Sanjida Saklayen  
PhD Candidate  

“Effects of Propranolol on Cognition and Eye Contact in Autism Spectrum Disorders (ASD)”  

August 27th, 2009  
170 DHLRI  
1:00 pm
VITA

December 31, 1980 ......................Born, Cincinnati, Ohio, USA

2003..............................................B.A. Biochemistry and Psychology, with honors from the Departments of Biochemistry and Psychology, Ohio State University, Columbus, Ohio, USA

2003-present..................................Ph.D. candidate in Integrated Biomedical Science Graduate Program, The Ohio State University, Columbus, Ohio, USA

COMMITTEE MEMBERS

Dr. David Beversdorf, Co-Advisor

Dr. Howard Gu, Co-Advisor

Dr. Sandra Kostyk

Dr. Wolfgang Sadee

AWARDS AND HONORS

Recipient, OSU MD/PhD Scientific Achievement Travel Award, 2009

Member, Landacre Honor Society, 2009

Recipient, National MD/PhD Student Conference Diversity Travel Award, 2006

Recipient, OSU Distinguished University Fellowship, 2003

Recipient, Howard Hughes Summer Research Program Fellowship, 2001

FUTURE PLANS

Following her graduate school training, Sanjida will return to medical school at The Ohio State University to finish her medical doctorate degree, as part of the Medical Scientist Program.
ABSTRACT

Characteristically, individuals with autism exhibit poor eye contact with others from an early age. Recent evidence suggests that direct eye contact may be physiologically stressful to those affected by autism. Stress is well known to activate the noradrenergic system. Therefore, an agent that could reliably decrease the stress related to eye contact by acting to block noradrenergic activation may be beneficial to those affected with autism. Propranolol, a nonselective beta blocker, is an ideal agent for this purpose because it produces noradrenergic blockade with central nervous system effects. While propranolol is often prescribed for hypertension, it is also commonly prescribed for situational anxiety (stage fright, test anxiety, etc) due to its central activity. Thus, since decreased eye contact in autistic individuals may be linked to stress and propranolol is known to decrease social stress, we proposed to determine whether autism-affected individuals would increase their eye contact when given propranolol. Thus, we hypothesized that propranolol administration, through its action of decreasing the stress response, would lead patients with autism to spend more proportionate time making eye contact, compared to placebo administration. Eye contact was measured using an ASL eyetracker and dynamic video stimuli of 16 novel faces at each of two drug condition visits. Eyetracker data was analyzed using the EyeNal and FixPlot programs by ASL.

Furthermore, in a previous study in this lab, performance on simple cognitive flexibility tasks was shown to be increased in autistic individuals who took propranolol, whereas controls only exhibited improvement in difficult tasks. Other research in typical individuals has suggested a benefit for propranolol in verbal fluency. As a secondary hypothesis, to examine other possible benefits of propranolol on cognition, we compared performance on verbal fluency tasks, which require cognitive flexibility, between autistic and control individuals, under propranolol and placebo conditions.
Fourteen autism subjects with age/IQ/gender matched controls were tested in the verbal fluency study and the same fourteen autism subjects participated in the eyetracking study. Results indicate significant improvements in eye contact as well as in semantic fluency in autism subjects given propranolol, relative to the placebo condition. 2x2 ANOVA in the semantic fluency task revealed a trend for an interaction effect of drug and group as well as a significant main effect of drug. One-way ANOVA of eyetracking data in the ASD group showed a significant effect of drug on amount of time gazing at the mouth and also for percent of recorded fixations on the eyes region.

RECENT ABSTRACTS AND PRESENTATION

Sanjida S. Saklayen. (2009) “Effects of Propranolol on Cognition and Eye Contact in Autism Spectrum Disorders (ASD).” Selected Speaker. OSUCOM Research Day Trainee Speaker Series: MD/PhD section. Columbus, Ohio, USA.


