

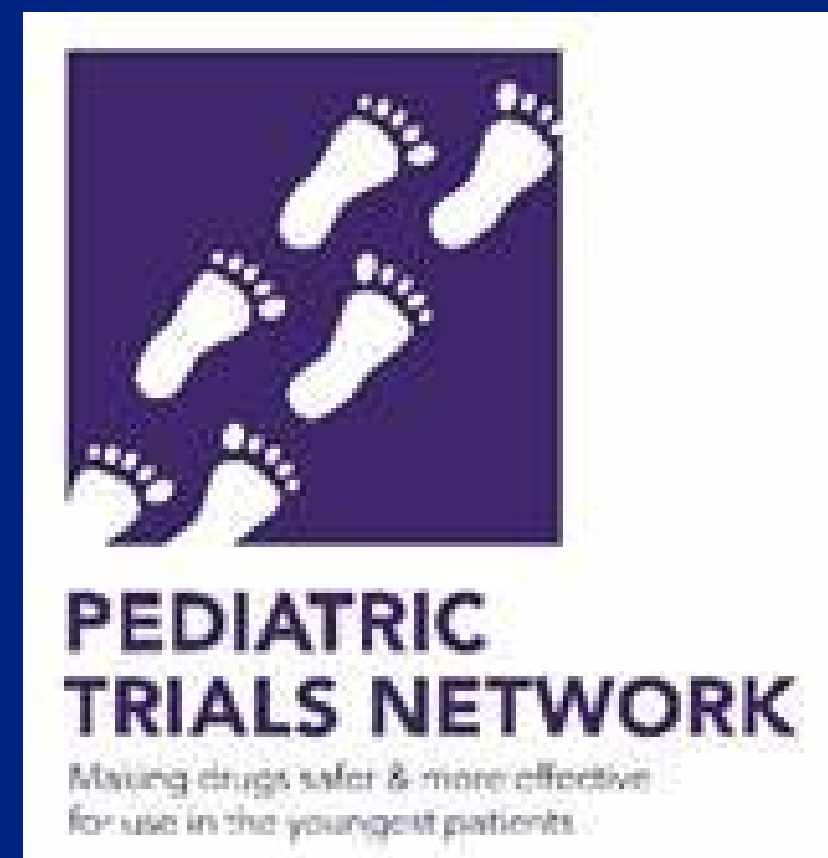
Weight Gain and Metabolic Syndrome in Children Exposed to Second-Generation Antipsychotic Medications



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BACKGROUND

- Second-generation antipsychotic medications (SGA) are associated with adverse metabolic effects
- National guidelines recommend screening after SGA initiation
- Guideline adherence within pediatric primary care is uncertain

OBJECTIVES

- Determine the rate of screening and detection rates of metabolic syndrome after SGA initiation
- Compare changes in weight among SGA exposed children to unexposed controls

DATA SOURCE & METHODS

Data Source

- Electronic health record network of networks or super-network (CER²)
- Two-hundred twenty-two U.S. pediatric primary care practices

Study Population & Exposure Status

- Children ages 3-18 years with minimum 180 days observation time between 2000 and 2016
- SGA exposure was determined by the presence of at least one SGA prescription

Primary Outcomes

- Metabolic syndrome, based on modified WHO definition
 - Obesity
 - Hypertension
 - Dyslipidemia
 - Elevated glucose level/Diabetes Mellitus

Analysis

- Rates of metabolic syndrome screening and detection were summarized using descriptive statistics
- Mean change (\pm SD) from baseline weight at 3, 6 & 12 months after SGA initiation were compared to propensity-score matched unexposed children
- Separate analyses were performed by age at initiation (<11y vs \geq 11y)

RESULTS: SGA-EXPOSED COHORT DESCRIPTION

Table 1: Demographics

	Eligible subjects with \geq 1 SGA Rx (N= 12,911)
Age at index SGA	
3 – 5 years	884 (7%)
6 – 12 years	6297 (49%)
13 – 18 years	5730 (44%)
Male gender	8158 (63%)
Race	
African-American	3980 (31%)
American Indian/Alaska native	35 (0.3%)
Asian/Pacific Islander	98 (0.8%)
Caucasian	6427 (50%)
Mixed	174 (1%)
Unknown	2197 (17%)
Ethnicity	
Hispanic	1047 (8%)
Non-Hispanic	10,573 (82%)
Unknown	1291 (10%)

Baseline MH Diagnoses

- ADD 43%
- Non-OCD Anxiety disorder 23%
- Depression 15%
- Psychotic Disorders 13%
- PDD/Autism 12%

Concurrent Medications

- Stimulants 41%
- Antidepressants 32%
- Anti-anxiety 4%

Index SGA and Treatment Patterns

- Index SGA
 - Risperidone 50%
 - Aripiprazole 30%
 - Quetiapine 14%
 - Other SGA 6%
- 67% children had \geq 1 SGA Rx
- Median SGA duration was 1.1 years (IQR 0.38 – 2.31)

RESULTS: METABOLIC SYNDROME SCREENING AND DETECTION

Pattern of evaluation for metabolic syndrome across all four domains

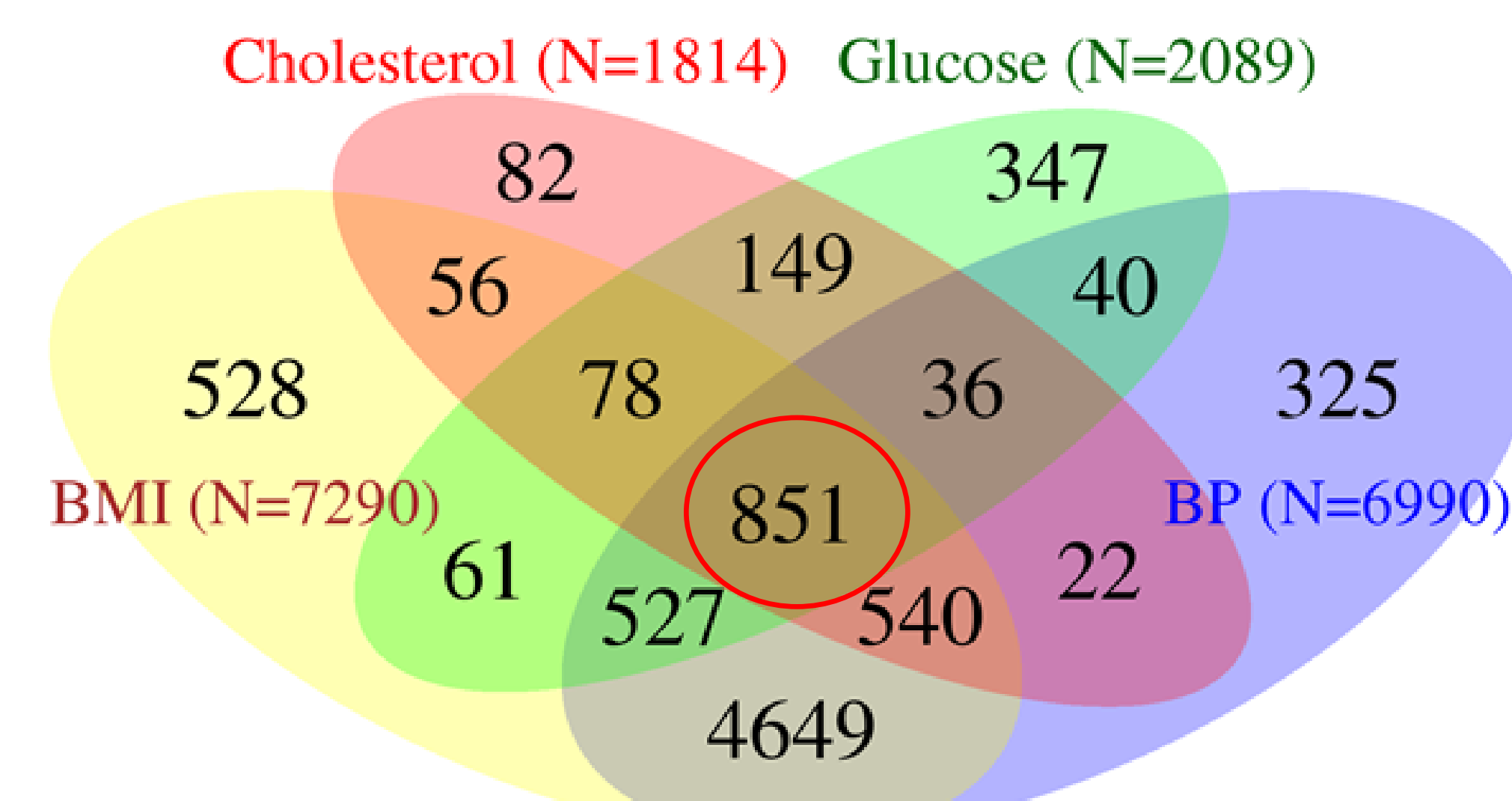


Table 2: Metabolic Changes after SGA Initiation*

	Age at index SGA	
	Age <11 yrs N = 5,216	Age \geq 11 yrs N = 7,695
Obesity	974 (27%)	1175 (31%)
Hypertension	612 (18%)	543 (15%)
Abnormal cholesterol	86 (11%)	190 (18%)
Abnormal glucose testing	82 (10%)	162 (12%)
Met criteria for metabolic syndrome** (3 out of 4)	19 (5%)	45 (10%)

* Follow-up time was within 3 years, or 6 months following last SGAM prescription (whichever comes earlier)

** Based on the World Health Organization (WHO) criteria for metabolic syndrome; percentages reflect those with follow-up measurements only

- 851 (7%) were evaluated in all four domains
- Obese children (BMI \geq 95thile) were more frequently tested (360/2145 [17%], $p < 0.001$)

RESULTS: WEIGHT CHANGE

Table 3: Short-Term Weight Change

MALES	Age at index SGA			
	Age <11 years		Age \geq 11 years	
	\geq 1 SGA Rx N= 1,556**	No SGA N= 5,598	\geq 1 SGA Rx N= 1,707**	No SGA N= 6,317
Baseline weight (kg)	30.9 \pm 10.6	28.6 \pm 10.9	62.7 \pm 21.3	62.7 \pm 20.5
Weight change at:				
3 months	1.5 \pm 2.0	0.9 \pm 1.3	2.6 \pm 3.7	1.1 \pm 2.6
6 months	2.4 \pm 2.8	1.8 \pm 1.7	3.9 \pm 5.0	2.7 \pm 3.5
12 months	4.6 \pm 3.9	3.7 \pm 2.5	7.2 \pm 7.2	5.4 \pm 5.0
FEMALES	Age at index SGA			
	Age <11 years		Age \geq 11 years	
	\geq 1 SGA Rx N= 542**	Unexposed N= 1,796	\geq 1 SGA Rx N= 1,181**	Unexposed N= 5,041
Baseline weight (kg)	31.5 \pm 11.8	29.8 \pm 12.1	64.6 \pm 20.1	60.6 \pm 17.9
Weight change at:				
3 months	1.9 \pm 2.2	1.0 \pm 1.4	1.8 \pm 3.5	0.7 \pm 2.6
6 months	3.1 \pm 2.8	2.1 \pm 2.0	2.6 \pm 5.9	1.4 \pm 3.4
12 months	5.4 \pm 4.7	4.4 \pm 2.9	4.2 \pm 7.5	2.9 \pm 4.6

*Mean values and \pm standard deviations are shown

**Only subjects with baseline weight measured on the day of SGAM initiation are included

CONCLUSION

- Screening for metabolic syndrome in pediatric primary care after SGA initiation was low, despite accelerated weight gains
- Prospective studies are needed to better delineate metabolic changes and identify targets for invention including greater adherence to screening recommendations.

ACKNOWLEDGEMENTS

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