**BACKGROUND**

Autism spectrum disorders (ASD) are a group of complex neurodevelopmental conditions characterized by social interaction, communication, and behavior. Two key points are highlighted:

- **Increased risk for comorbidities:** Hypertension, obesity, dyslipidemia, cardiovascular disease.
- **Increased morbidity and mortality** compared to non-ASD individuals.

**OBJECTIVE OF REVIEW**

The objective of this systematic review is to examine metabolic dysfunction, specifically metabolic syndrome and its components, as well as T2DM as it relates to individuals with a diagnosis of ASD.

**METHODS**

**Search Term Categories**

- **Population:** autism* OR asperger* OR pervasive developmental disorder OR PDD OR ASD
- **Outcome:** metabolic OR obesity OR diabetes OR hyperglycemia OR hypertension OR dyslipidemia

**Screening**

1. Title, abstract, and keyword screening
2. Full text screening
3. Add additional papers from other sources

**RESULTS**

- **207** full texts to screen
- **1** paper from other sources
- **8** included papers

**Data Extraction**

- **Study characteristics**
- **Participant characteristics**
- **Covariates**
- **Algorithms**
- **Outcomes of interest**
- **Controlling factors**
- **Mediators**
- **Moderators**
- **Limitations of study**

**DYSFUNCTION RELATED OUTCOMES**

- **T2DM/Hyperglycemia**
  - Higher incidence, shorter time to onset, higher odds
  - Both adolescents and young adults have increased risk
  - Both sexes have higher risk than controls. Male risk factors- obesity and dyslipidemia, female: hypertension and dyslipidemia
  - Females have increased odds vs males.

- **Hypertension**
  - Higher rate, higher odds
  - No difference for SBP/DBP
  - Demographics, atypical psychopharmacological use, medical comorbidities, age, sex, BMI
  - Both adolescents and young adults have increased risk
  - Both sexes have higher risk than control. Male risk factors- obesity and dyslipidemia, female: hypertension and dyslipidemia
  - Females have increased odds vs males.

- **Dyslipidemia**
  - Higher rate, higher odds
  - Higher t-chol, lower HDL, higher LDL, higher TG
  - Both sexes have increased odds versus controls. Controls have increased odds compared to males.
  - No effect on lipid profile

- **Central Obesity**
  - Age, sex, BMI, SES, BMI, social anxiety, obsessive compulsive behavior, physical activity, antipsychotic medications, smoking
  - Both sexes have increased odds versus controls. Controls have increased odds compared to males.

**CONCLUSION**

- While those with ASD have increased rates of metabolic dysfunction, further understanding of associations can provide strategies in identifying at risk patients and improve diagnosis or treatment of comorbidities for optimal patient care.
- Improving metabolic monitoring in patients with ASD may be a strategy to address increased rates of metabolic dysfunction.

**DISCUSSION**

**Summary of Results**

- **Increased prevalence of T2DM and metabolic syndrome components** associated with ASD, specifically hyperglycemia, hypertension, and dyslipidemia, in pediatric and adult populations.
- **Potential moderating factors** included age, sex, atypical antipsychotic usage, and comorbid medical illnesses.
  - Lack of research investigating the effects of race and ethnicity on these relationships.
- **Unknown relationship between ASD and metabolic syndrome as a diagnosis.**
- **Unknown relationship between ASD and central obesity.

**Clinical Implications**

- **Improve metabolic monitoring in patients with ASD taking antipsychotic medications.**
- **Increase multidisciplinary collaboration with psychiatry and primary care for monitoring and data gathering.**

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**References**