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The Correlation Between Serum C-Reactive Protein Level and Risk of Future Cardiovascular Disease: A Neurodivergent Population Dilemma

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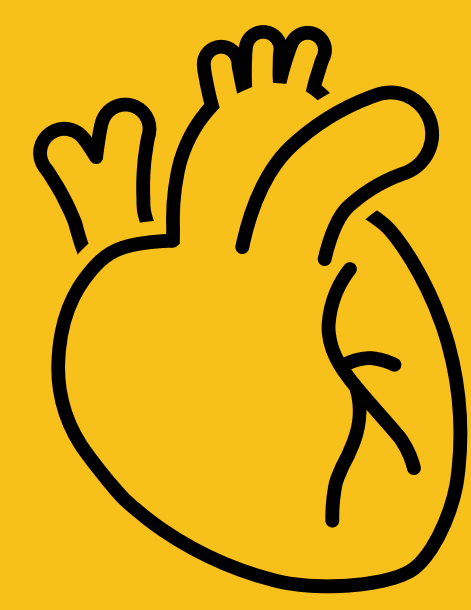
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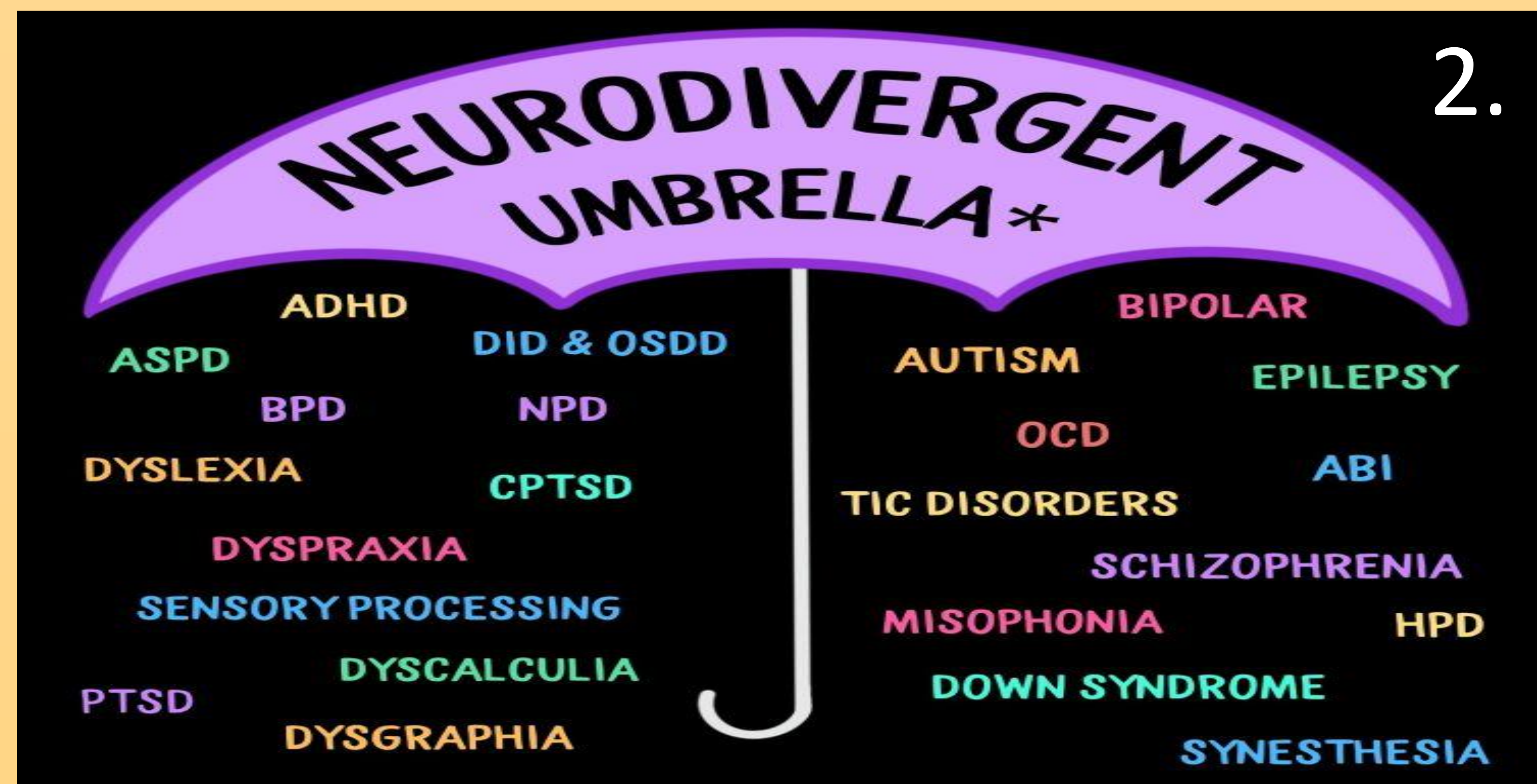


The Correlation Between Serum C-Reactive Protein Level and Risk of Future Cardiovascular Disease: A Neurodivergent Population Dilemma

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Abstract

Extensive research on neurotypical (NT) populations has demonstrated that a chronically elevated level of serum C-Reactive Protein (CRP) is a strong predictor of future cardiovascular disease (CVD). Interestingly, many neurodivergent (ND) populations experience chronically elevated CRP levels higher than NT controls. Current research is concerned with establishing the significance of this relationship to accurately predict CVD risk for potentially at-risk ND patients. To contribute to this gap in knowledge, the Rowan-Virtua Regional Integrated Special Needs (RISN) Center patient population will be studied to identify trends in baseline serum CRP levels across a multitude of ND conditions. A clinical risk assessment scale, specifically designed for treating ND populations, will be developed based on the significance of the results of this study.



Methods

Search Strategy:

- PubMed on 1/12/23: "CRP cardiovascular disease risk" = 398 results
- Google Scholar 3/11/23: "autism OR adhd AND crp cardiovascular disease" = 6,070 results ; "(generalized anxiety disorder OR major depressive disorder OR bipolar disorder OR ptsd OR ocd) AND crp OR cardiovascular disease" = approx. 65,000

Inclusion Criteria: NT and ND populations of varying CVD health status and risk were included.

Backward chaining from systemic reviews and meta-analyses.

Table 1. Cardiovascular Risk Based on hs-CRP Level 1.

Risk	hs-CRP Level
Low	<1 mg/L
Average	1-3 mg/L
High	>3 mg/L

hs-CRP: high-sensitivity C-reactive protein. Source: Reference 3.

Results

Neurodivergent Population	CRP Level vs Neurotypical Control	CRP-related Risk of Developing CVD	Source
Autism	Elevated	Significantly increased	3
ADHD	No significant difference	None	4
Obsessive Compulsive Disorder	29.9% higher	Medium to high	5
Major Depressive Disorder	36.5% higher	Medium to high	5
Bipolar Disorder	47.4% higher	Medium or high	5
Down Syndrome	Elevated	Likely increased	6
PTSD	Elevated	Inconclusive	7

Figure 1: Neurodivergent population CRP levels compared to neurotypical controls and the associated risk of developing CVD.

Discussion

- Preliminary studies show significance of chronically elevated serum CRP levels in predicting development of CVD SPECIFICALLY in neurodivergent populations
- Additional research needed to increase sample size and confidence in results

Conclusion

- **QUESTION:** Do elevated CRP levels in neurodivergent patients put them at higher, lower, or equal risk of developing CVD than neurotypical individuals with equally elevated CRP levels?
- **PLAN:** Retrospective chart review of patients from the RISN Center will be conducted. Results of this study will contribute to relation to the current literature will determine significance.
- **GOAL:** Create risk assessment tools and preventative care measures specifically tailored for at-risk neurodivergent populations. Implement at the RISN Center for clinical utility.

Rowan Integrated
Special Needs
(RISN) Center



References

