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# Investigating the Link Between Preeclampsia/Eclampsia in Mothers and Cardiovascular Risk Among Their Neurodivergent Children

Jasmine Emanuel  
*Rowan University*

Andrea Iannuzzelli  
*Rowan University*

Venkateswar Venkataraman  
*Rowan University*

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# Investigating the Link Between Preeclampsia/Eclampsia in Mothers and Cardiovascular Risk Among Their Neurodivergent Children

Jasmine Emanuel, Dr. Andrea Iannuzzelli\*, Dr. Venkateswar Venkataraman#

Rowan-Virtua School of Osteopathic Medicine - \*Rowan-Virtua Regional Integrated Special Needs (RISN) Center - #Department of Academic Affairs

## Background

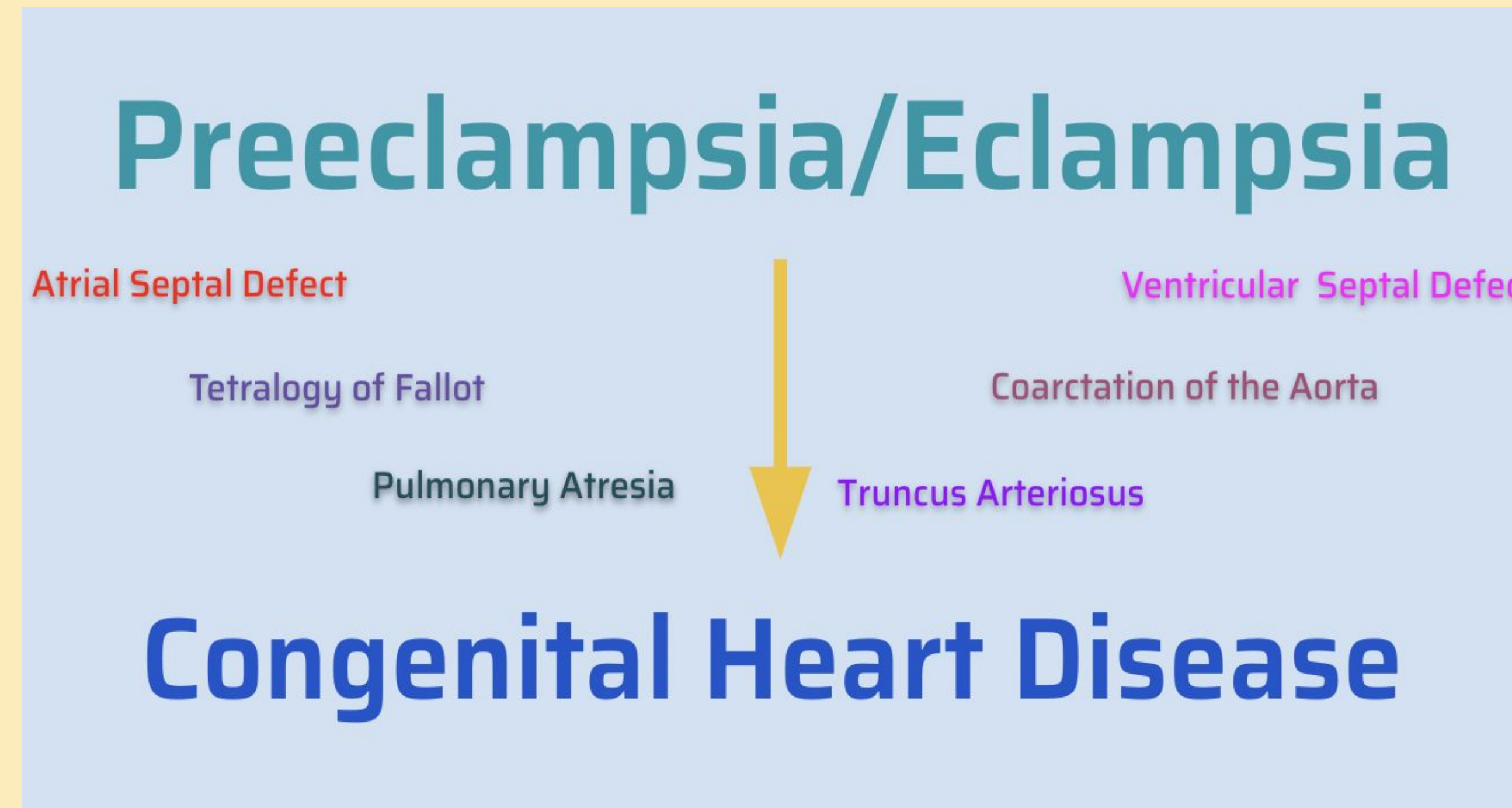
- Preeclampsia/Eclampsia (P/E) are common gestational conditions among pregnant women, which can put the mother and fetus at risk.<sup>1,2</sup>
- It is unclear if P/E specifically affects incidence of congenital heart defects (CHD) in the fetus.
- This review investigates whether an association exists between CHD, and maternal P/E in the neurotypical and neurodivergent population.

## Methods

Database Searched	Date of Search	Keyword String	Number of Results
PubMed	January 8, 2023	Preeclampsia Congenital Heart Defect	8
PubMed	January 27, 2023	Preeclampsia Effect on Mother	75
PubMed	January 27, 2023	Pregnancy Complications Cardiovascular Risk	204
PubMed	January 27, 2023	Neurodevelopmental Cardiovascular Risk	64
PubMed	February 9, 2023	Heart Defect Autism	22
Google Scholar	February 9, 2023	Preeclampsia Neurodevelopmental	11,600
Google Scholar	February 9, 2023	Preeclampsia Cardiovascular	19,400

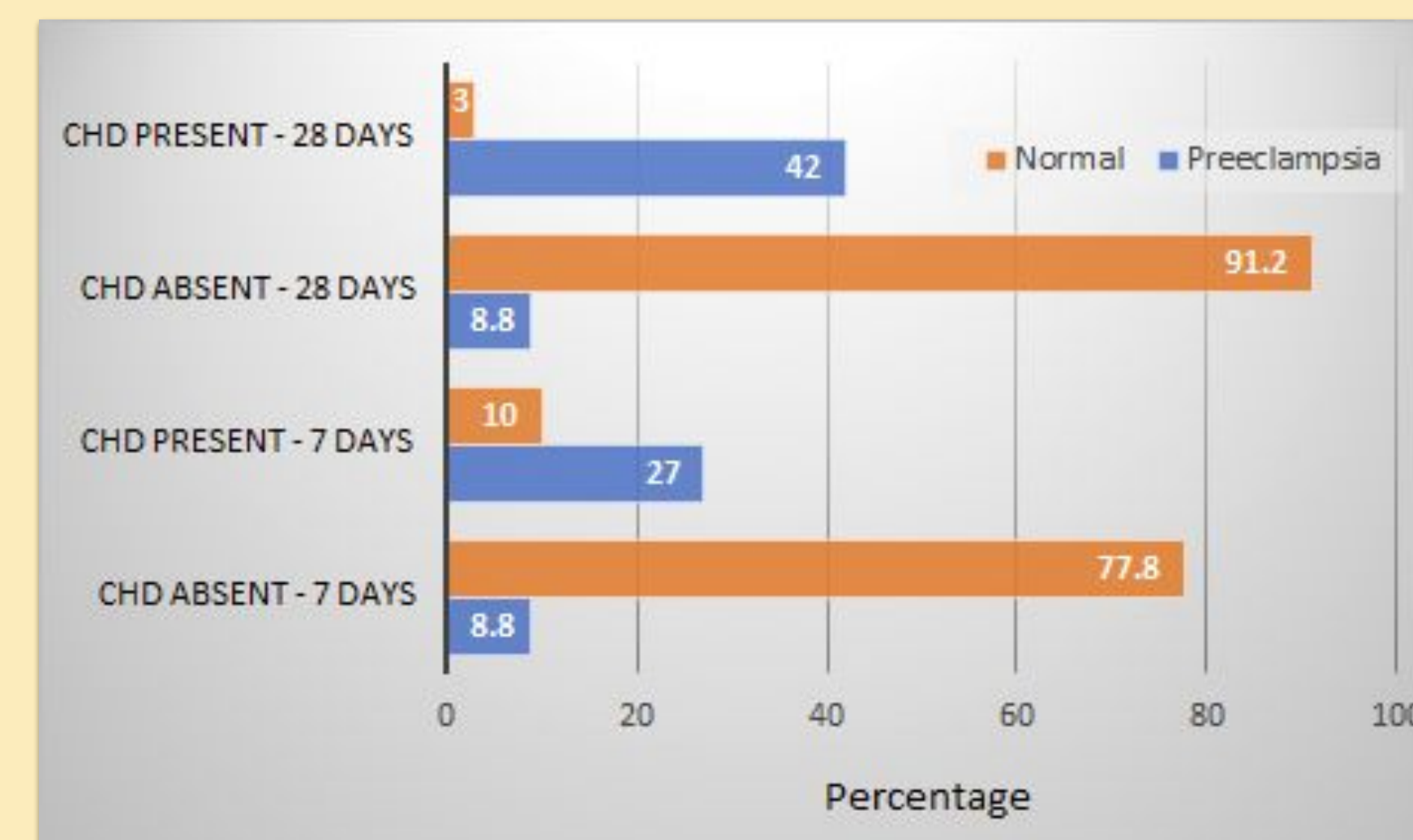
**Search Criteria:** The search criteria keywords included "Preeclampsia/Eclampsia Congenital Heart Defect," and "Maternal Preeclampsia Congenital Heart Anomalies," which formed the nucleus of the review. Publications after 2018 were included whether they were case reports, case studies, or other peer reviewed sources. Studies were excluded if they were not in English or if the full text could not be obtained.

## Results

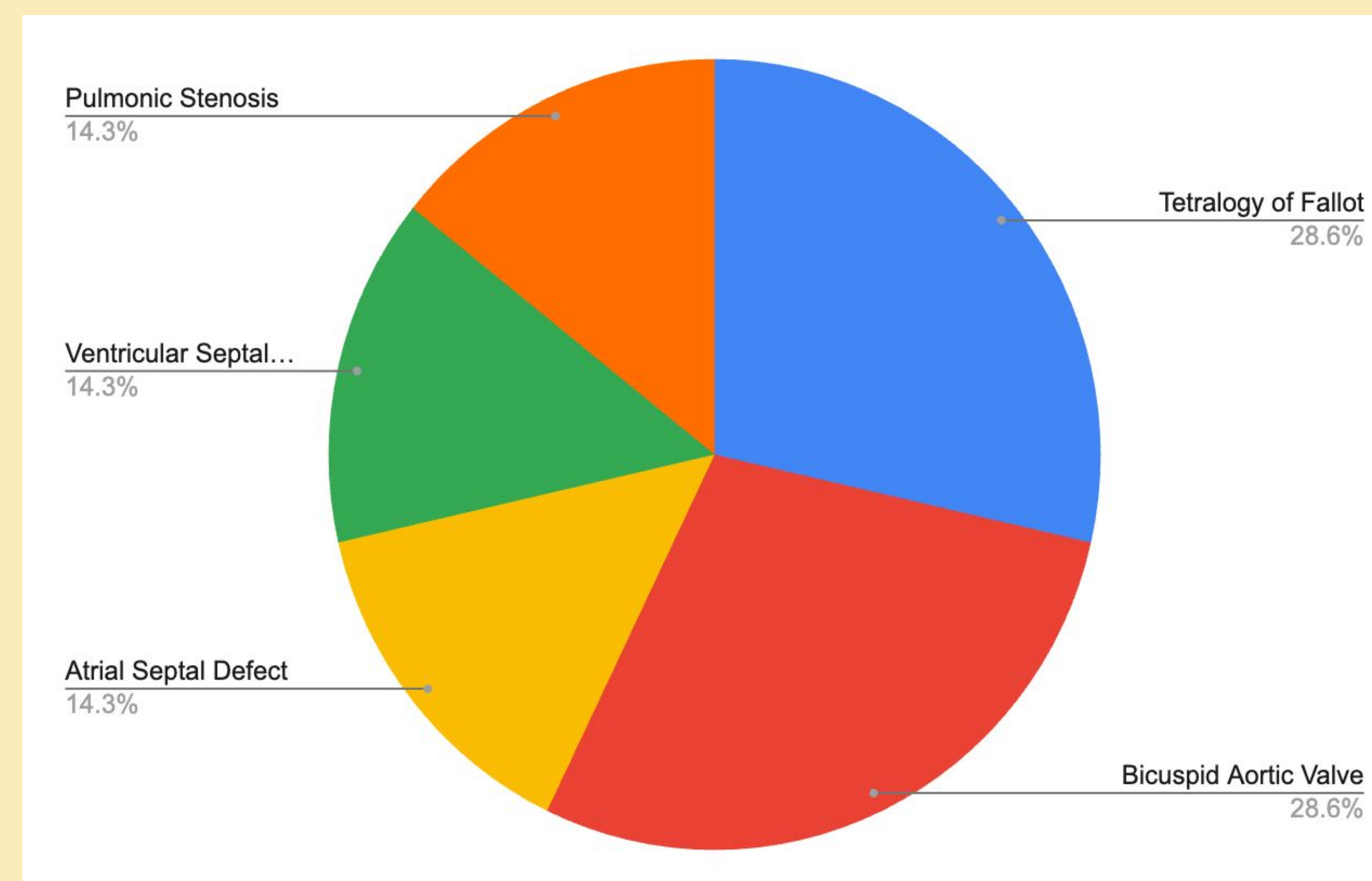


Type of CHD	Prevalence	
	Total	Neurodiverse
Ventricular Septal Defect	1/240	?
Atrial Septal Defect	1/1859	?
Coarctation of the Aorta	1/1800	?
Tetralogy of Fallot	1/2518	?
Pulmonary Atresia	1/7100	?
Tricuspid Atresia	1/9751	?
Truncus Arteriosus	1/10000	?

**Table 1: Prevalence of Congenital Heart Defects in the United States.** Data Source: CDC. No information available for the neurodivergent population in the United States.



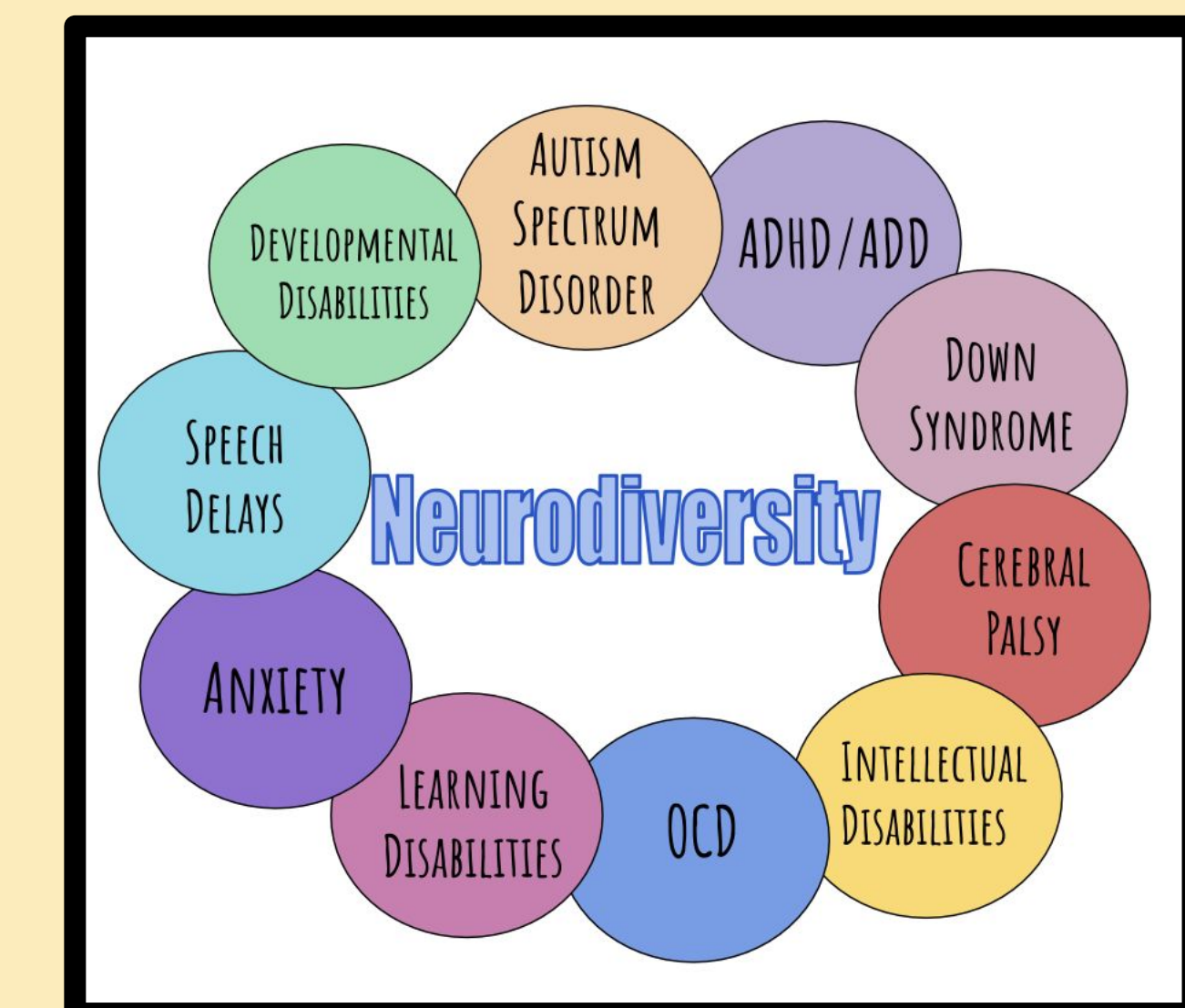
**Figure 1: Percentage of children with Congenital Heart Defects upon Preeclampsia exposure.**  $p < 0.001$  (28 days);  $p=0.001$  (7 days). Data from Yilgwan et al., 2020 PLOS One



**Figure 2: Maternal Preeclampsia/Eclampsia diagnosis and the most common congenital cardiovascular anomalies among their neurodivergent children.** Data gathered from RISN Center.

## Discussion

- There is information on the relationship between P/E and CHD in neurotypical children: both in terms of prevalence and association (Table 1 & Figure 1).
- Is the relationship similar or stronger in the neurodivergent population?
- The answer is critical for overall care, especially with respect to end organ damage.



## Future Directions

- More data is being collected to see if a strong correlation exists among the neurodivergent population.
- Additional research is essential in order to provide optimal care to the already vulnerable neurodivergent population.

## References



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