

# Vaso-vagal reflex in paediatric patients with cardiac catheterization: Integrative literature review

Vaso-vagal reflex is a significant and common complication in paediatric patients with cardiac catheterization. Vaso-vagal reflex includes several symptoms, such as tachycardia, pressure, light headedness, nausea, or cyanosis that are severe threats to cause death. To understand the vaso-vagal reflex among paediatric patients with cardiac catheterization, we conducted integrative literature to review content about nursing with the reflex. We reviewed, analysed, and synthesized published research and grey literature between 2006 and 2016. Results were found that there were 9 papers related to vaso-vagal reflex among paediatric patients with cardiac catheterization. Overall, content about vaso-vagal reflex in paediatric patients with cardiac catheterization included three aspects. First, it was assessment of disorders and complications. Because paediatric patients with cardiac catheterization experienced changes in emotional and behavioural signs, nurses should concern and focus on these changes. Second, it was nursing to prevent irregularities and complications. Nurses need to care of the paediatric patients to reduce the pain, reducing anxiety and reducing fear. Lastly, it focuses on nursing after disorders and complications. Nurses care of the patients to get drugs or fluids to cause nausea and vomiting. Moreover, they nurse the patients with Trendelenburg position to prevent vaso-vagal reflex. Although there was little paper about the vaso-vagal reflex among paediatric patients with cardiac catheterization, it was the fundamental information to study and develop nursing practice guidelines based on the evidence vaso-vagal reflex in paediatric patients with cardiac catheterization for the future research.

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## Introduction

Vaso-vagal reflex in paediatric patients after cardiac catheterization is a common complication. If severe symptoms are life threatening. Ovarian hyper stimulation (vaso-vagal reflex: hypotension, pallor, bradycardia) in paediatric patients after cardiac catheterization was found at 9.2%. In Thailand, there is no clear report. Vaso-vagal reflex Automatic reaction Caused by an abnormal functioning of the autonomic nervous system is a parasympathetic system that is over stimulated. Arteries expand Low blood pressure until the blood to the brain is not enough and finally unconscious. Factors that are important triggers include emotional and psychological stress, pain; exposure to certain drugs that stimulate the level of Catecholamine such as salbutamol, dehydration and salts, infections, etc. vaso-

vagal reflex is a common condition in paediatric patients after cardiac catheterization. In severe cases and life threatening it has also been found to be complex to care because it involves several factors. Therefore, paediatric patients should be evaluated and managed correctly and quickly. To reduce the severity of complications that threatens life. Reduce the incidence of vaso-vagal reflex and reduce the length of hospital stay [1,2]. To collect and synthesize research evidence on vaso-vagal reflex among paediatric patients with cardiac catheterization.

## Method

Vaso-vagal reflex-based literature review in pediatric patients after cardiac catheterization. Applied literature review concept evidence base by Melnyk &

Fineout-Overholt, 2005 there are 7 levels: 1) systematic review or meta-analysis from experimental research; 2) experimental research; 3) quasi-experimental research; 4) retrospective research or follow-up studies. 5) Systematic review of descriptive research. 6) Descriptive and qualitative research; and 7) expert evidence [3,4].

Reviewed, analyzed, and synthesized published research and grey literature between 2006 and 2016

from databases such as PubMed, CINAHL, Science direct, OVID Medline, Google scholar. 9 papers related to vaso-vagal reflex among paediatric patients with cardiac catheterization. The study reports 9 levels of empirical evidence. The most common level of evidence is level 7 or evidence from 6 experts/experts, followed by Level 6 or descriptive research. 3 qualitative research papers (Table 1) [5,6].

**Table 1: Analysis of the Evidence.**

No	Title	Research design	Level
1	Vaso-Vagal reaction during femoral arterial sheath removal after percutaneous coronary Intervention and impact on cardiac events	Descriptive research	6
2	Complication Associated With Pediatric Cardiac Catheterization	Descriptive research	6
3	Nursing pediatric patients with Pre and Post Cardiac Catheterization (In thai)	Descriptive research	6
4	Learning Module for Late arterial & venous sheath removal post cardiac catheterization and percutaneous coronary intervention (PCI)	Ideal from expert	7
5	Neonatal cardiac conditions: medical and surgical management care of post cardiac catheterization	Ideal from expert	7
6	Cardiac catheterization: interventional, non-interventional and electrophysiological studies –the children’s hospital at Westmead	Ideal from expert	7
7	Center for Education & Practical Development Learning Module Femoral sheath management for registered nurses division 1	Ideal from expert	7
8	The cardiac society of Australia and new Zealand Guidelines for Pediatric cardiac catheterization	Ideal from expert	7
9	The effectiveness of nurse led teaching in decreasing complication during femoral artery sheath removal after percutaneous coronary	Ideal from expert	7

#### Characteristic aspects of education

Based on the literature review, nine vaso-vagal reflexes in pediatric cardiac patients have been found in 3 cases. 1) Evaluation of disorders and complications; 2) nursing care for the prevention of disorders and complications; 3) nursing for disorders and complications [7,8].

#### Results

Results were found that there were 9 papers related to vaso-vagal reflex among paediatric patients with cardiac catheterization. Overall, content about vaso-vagal reflex in paediatric patients with cardiac catheterization included three aspects. First, it was assessment of disorders and complications. Because paediatric patients with cardiac catheterization experienced changes in emotional and behavioural signs, nurses should concern and focus on these changes. Second, it was nursing to prevent irregularities and complications. Nurses need to care of the paediatric patients to reduce the pain, reducing

anxiety and reducing fear. Lastly, it focuses on nursing after disorders and complications. Nurses care of the patients to get drugs or fluids to cause nausea and vomiting. Moreover, they nurse the patients with Trendelenburg position to prevent vaso-vagal reflex.

#### Discussion

Although there was little paper about the vaso-vagal reflex among paediatric patients with cardiac catheterization, it was the fundamental information to study and develop nursing practice guidelines based on the evidence vasovagal reflex in paediatric patients with cardiac catheterization for the future research [6,8].

#### Conclusion

This review of literature reflects vaso-vagal reflex in paediatric patients after cardiac catheterization is still unclear, but the issue is interesting. Therefore, health care personnel, especially nurses, should be aware of the care provided.

The knowledge gained from this review. This can be used as a guideline for further study of vaso-vagal reflex in paediatric patients after cardiac catheterization.

2. Development of nursing practice based on evidence of vaso-vagal reflex in paediatric patients after cardiac catheterization.

1. Definitions of vaso-vagal reflex in paediatric patients after cardiac catheterization from experts.

#### Executive Summary

Vaso-vagal reflex is a significant and common complication in paediatric patients with cardiac catheterization. Vaso-vagal reflex includes several symptoms, such as tachycardia, pressure, light headedness, nausea, or cyanosis that are severe threats to cause death. To understand the vaso-vagal reflex among paediatric patients with cardiac catheterization, we conducted integrative literature to review content about nursing with the reflex.

We reviewed, analysed, and synthesized published research and grey literature between 2006 and 2016. Results were found that there were 9 papers related to vaso-vagal reflex among paediatric patients with cardiac catheterization. Overall, content about vaso-vagal reflex in paediatric patients with cardiac catheterization included three aspects. First, it was assessment of disorders and complications. Because paediatric patients with cardiac catheterization experienced changes in emotional and behavioural signs, nurses should concern and focus on these changes.

Second, it was nursing to prevent irregularities and complications. Nurses need to care of the paediatric patients to reduce the pain, reducing anxiety and reducing fear. Lastly, it focuses on nursing after disorders and complications. Nurses care of the patients to get drugs or fluids to cause nausea and vomiting. Moreover, they nurse the patients with Trendelenburg position to prevent vaso-vagal reflex.

#### References

1. Centre Nursing Clinical Policy & Procedure Manual. Capital Health, Learning module for late arterial & venous sheath removal: Post cardiac catheterization and percutaneous coronary intervention (PCI). *NC*. 50: 50-70 (2010).
2. Renato V, McCrindle, David, *et al*. Pediatric cardiology: Complications associated with paediatric cardiac. *JACC*. 32: 1433-1440 (1998).
3. Neonatal Directorate. Women and Newborn Health Service King Edward Memorial hospital, Neonatal cardiac conditions: Medical and surgical management care of post cardiac catheterization. *NCCU. Clin. Guidelines*. 14: 1-3 (2014).
4. Centre for Education & Practice Development. The Children's hospital at westmead, Cardiac catheterization :interventional, non-interventional and electrophysiological studies. *Barwon. Health*. 4: 1-16 (2008).
5. Centre for education & practice development learning module: Femoral artery sheath management for registered nurses division 1. *Barwon. Health*. 5: 1-17 (2009).
6. CSANZ Board. Guildelines for pediatric cardiac catheterization. *Cardiac. Society. Aust. N. Z.* 2: 5 (2014).
7. Seyed MA, Maria A, Azadeh K, Fatemeh E, Mojgan D. The effectiveness of nurse led teaching in decreasing complication during femoral artery sheath removal after percutaneous coronary. *Saudi. Med. J.* 30: 1458 (2009).
8. Juergens CP, Lo S, French JK, Leung DY. Vaso-Vagal reaction doring femoral arterial sheath removal after percutaneous coronary intervention and impact on cardiac events. *Int. J. Cardiol.* 127(2): 252-254 (2007).