

Kawasaki shock syndrome in a Canadian Pediatric University Hospital over a period of 24 years

R-G Gutierrez-Rojas, L. K. Mom, A. Fournier, F. Proulx, N. Dahdah

Centre Hospitalier Universitaire Sainte-Justine, Montreal, Quebec, Canada

Contact Information:
Rocio Gutierrez
Tel. 514-345-4931 ext. 5407
rocio.gissel.gutierrez.rojas@recherche-ste-justine.qc.ca

BACKGROUND

Kawasaki disease (KD) is an immune vasculitis where **Myocardial inflammation** is omnipresent, at various degrees.

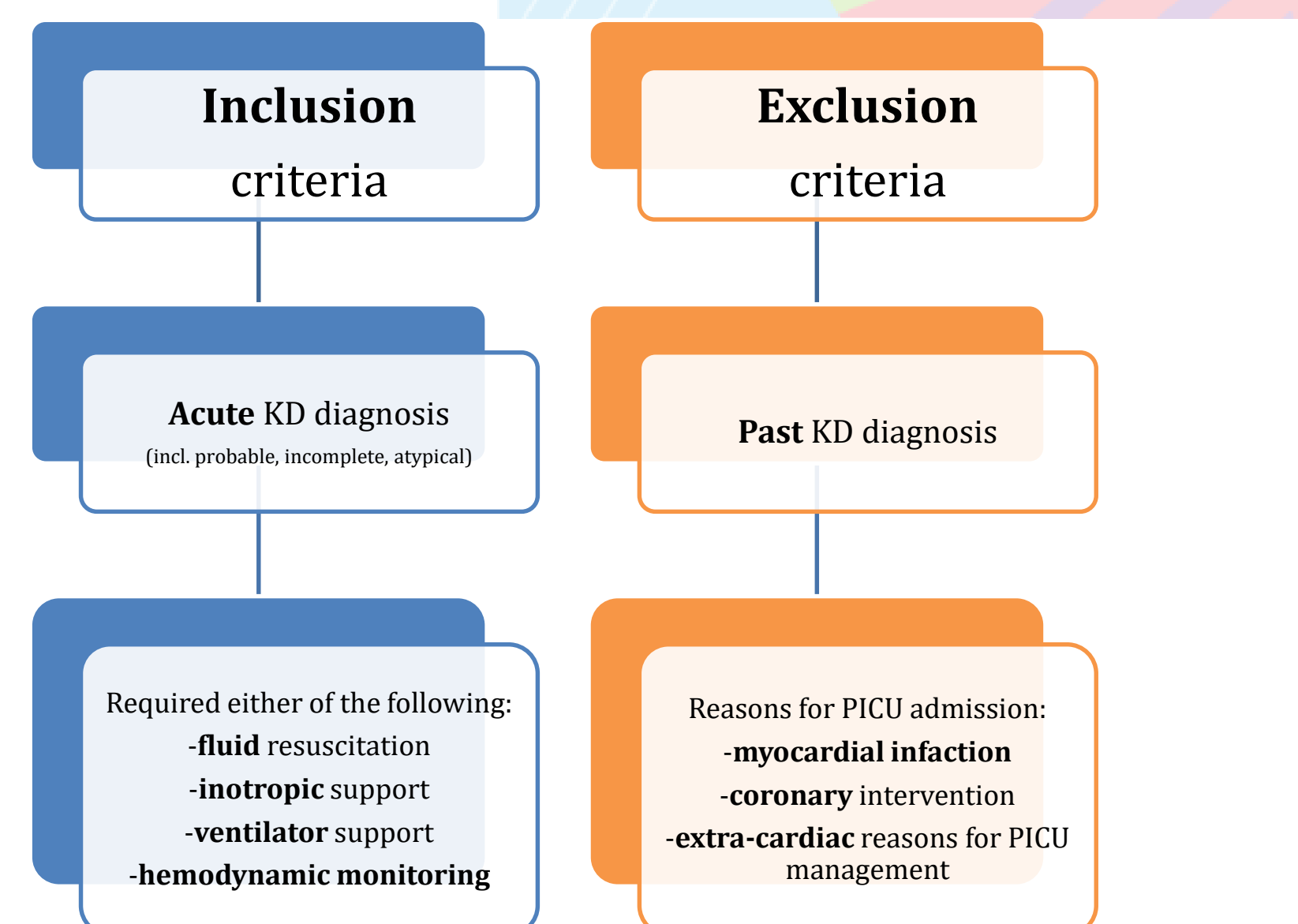
Typically treated on regular wards, it rarely requires Intensive Care Unit hemodynamic management.

Retrospective study: to describe presentation and outcomes of **KD Shock Syndrome (KDSS)** patients admitted at a tertiary Pediatric ICU (PICU).

METHOD

- Cases reviewed for **KD PICU admission** between **1995 & 2018**.
 - Diagnosis of KDSS** defined as sustained presence of:
 - systolic hypotension for age
 - decrease in systolic BP from baseline of $\geq 20\%$
 - clinical signs of poor perfusion regardless of measured BP
- **causing initiation of volume expansion, administration of vasoactive agents, or PICU transfer for HD surveillance**

- Pre-KDSS:** cases receiving preventive treatment to avoid KDSS



RESULTS

- 45** of 696 total new-onset KD admissions to CHU Ste-Justine required PICU management and met inclusion criteria (**6.4%**)
- Mean age at diagnosis: 5.7 ± 4.4 years

Table 1. Descriptive data of the 45 retained subjects with KDSS

Data	Median (range)
Yearly cases	2 [0-5]
KD diagnostic criteria	5 [3-6]
Length of PICU stay	4 days [0.5-12]
Delay between fever onset & PICU admission	6 days [1-13]
Delay between fever onset & diagnosis of KD	6 days [2-12]
Delay between fever onset & IVIG treatment	6 days [1-11]
Data	% (n)
Probable, incomplete or atypical case presentation	24.4% (11)
Resistance to IVIG requiring between 2 and 6 doses	15.6% (7)
Hemodynamic instability requiring PICU monitoring <i>only</i>	15.6% (7)
Corticosteroid therapy to prevent adrenal shock	2.2% (1)
Transfusion reaction to IVIG	8.8% (4)

CONCLUSIONS

Average **prevalence** of KDSS in the **past 24 years** was **higher** than the reported incidence rate of 1.45 % in Taiwan and **comparable** to the 2.60-6.95% in Western countries (France, US, Mexico, Switzerland).

Seasonal cluster of KDSS was **similar to Taiwan**, but not reported from western countries.

Findings deserve a **larger Canadian/North American** scale study: to better understand triggers and outcomes of KDSS.

Future interest: series looking into clinical, metabolic, and inflammatory variants comparing cases with & without capillary leak syndrome

Figure 1. Breakdown of KD PICU admissions.

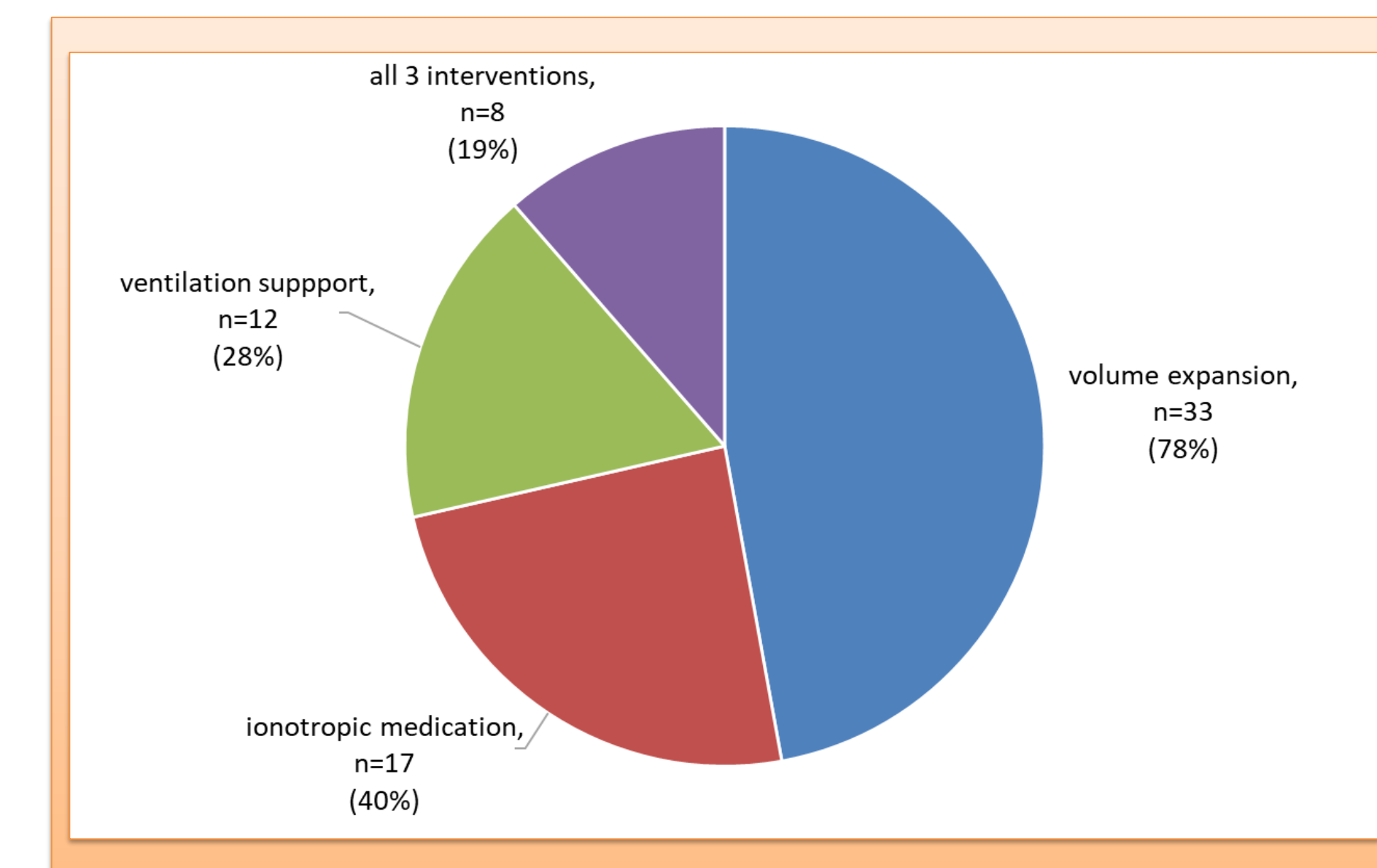
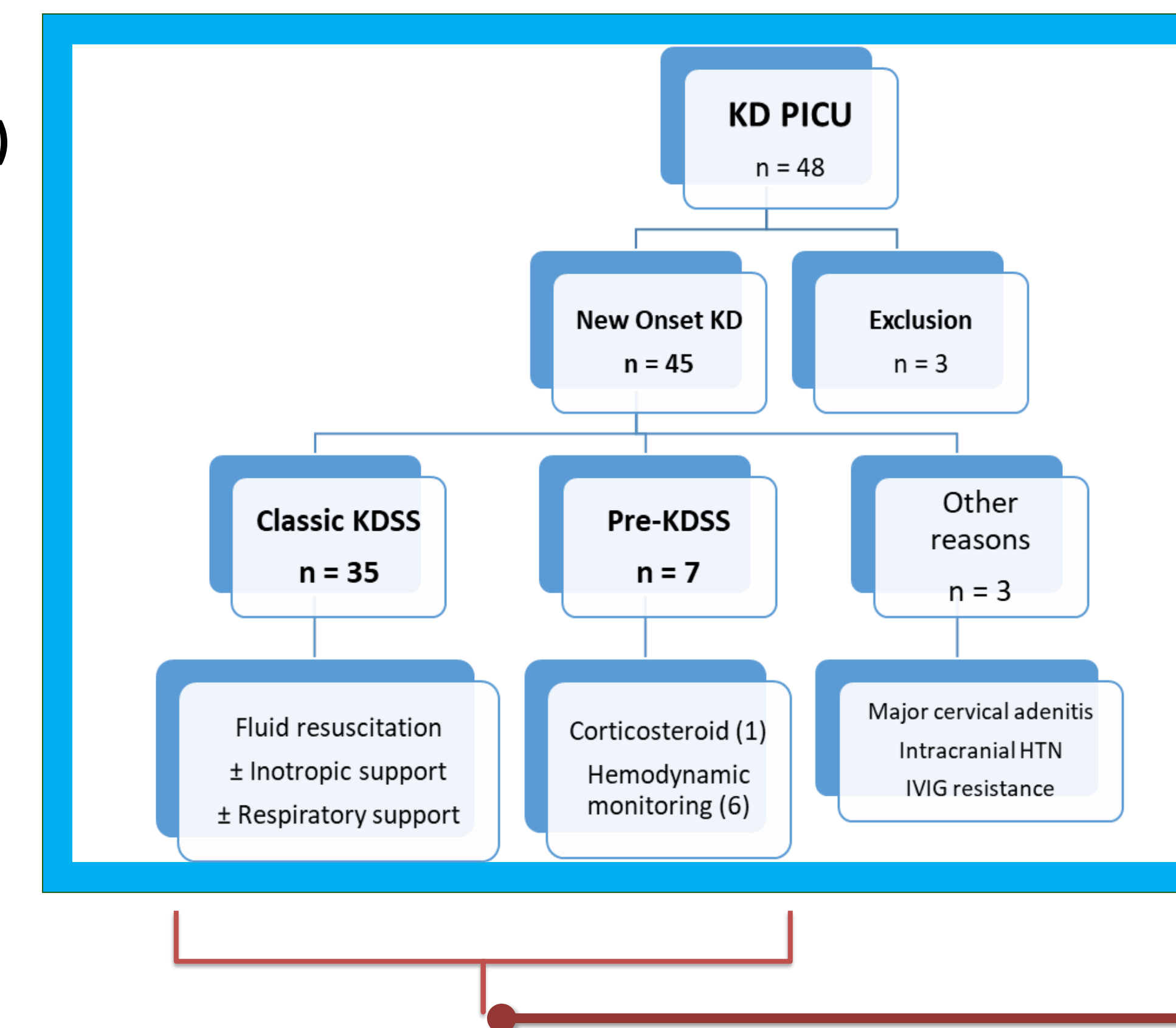


Figure 2. Interventions of the 42 KDSS/pre-KDSS cases identified

- 24/42 (57%):** between the months of October and January – with annualized prevalence of $6.0\% \pm 4.3\%$
- Coronary aneurysms:** in **11/42 (26%)** KDSS/pre-KDSS
 - 7 / 42 (16%)** were **giant aneurysms**

REFERENCES

- Dominguez SR et al. Kawasaki disease in a pediatric intensive care unit: a case-control study. *Pediatrics* 2008; 122(4); e786-e790.
- Kanegaye JT et al. Recognition of a Kawasaki disease shock syndrome. *Pediatrics* 2009; 123(5); e783-9.
- Natterer J et al. Capillary leak leading to shock in Kawasaki disease without myocardial dysfunction. *Cardiology in the Young* 2012; 22(3); 349-352.
- Gatterre P et al. Kawasaki disease: an unexpected etiology of shock and multiple organ dysfunction syndrome. *Intensive care medicine* 2012; 38(5); 872-878.
- Gómez-González LB et al. Clinical manifestations associated with Kawasaki disease shock syndrome in Mexican children. *European journal of paediatrics* 2013; 172(3); 337-342.
- Lin MT et al. Population-based study of Kawasaki disease shock syndrome in Taiwan. *Pediatr Inf Dis J* 2013; 32(12); 1384-1386.
- Kuo C-C et al. Characteristics of children with Kawasaki disease requiring intensive care: 10 years' experience at a tertiary pediatric hospital. *J Microbiol Immunol Infect* 2018; 51; 184-190.

DISCLOSURES

- Authors have **not had** an affiliation (financial or otherwise) with a commercial organization that may have a direct or indirect connection to the content of my presentation.

Does your presentation describe the off-label use of a device, product, or drug that is approved for another purpose?

NO **YES** If you answered **YES**, you must disclose this to the audience within your presentation