Whether the proposed of new pulmonary hypertension criteria has an impact on pediatric and adolescent patients' management?

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Background:

According to the 6th World Symposium on Pulmonary Hypertension, there was a new proposed criterion for pulmonary hypertension (PH) diagnosis with the mean pulmonary artery pressure (mPAP) ≥ 20 mmHg instead of ≥ 25 mmHg. While the criteria for pulmonary arterial hypertension (PAH) would be defined by mPAP ≥ 20 mmHg and the pulmonary vascular resistance (PVR) ≥ 3 WU.m^2. Very little data is available for pediatric and adolescent pulmonary hypertension patients whether the diagnostic criteria change would have an impact of patient care.

Objective:

To define whether lower the bar for pulmonary hypertension diagnosis would increase the number of pediatric and adolescent patients and change their management.

Method:

Retrospectively review of the previous cardiac catheterization record, the data was sourced out and defined the PH cases base on the existing criteria versus the newly proposed criteria. The patients were divided into 3 groups according to their mPAP, specifically group A: < 20 mmHg, group B: 20-24mmHg, and group C ≥ 25mmHg.

Results:

A total of 85 patients underwent cardiac catheterization for hemodynamic evaluation with complete data record at a tertiary care center specialized in pediatric pulmonary hypertension. Their mean age was 6.1 ±5.3 years with M: F =1.125. Majority of the patient (62%) had moderate-to-large systemic-to pulmonary shunt (ASD, VSD, PDA).A quarter of patient had great complex congenital heart such as truncus arteriosus or palliative surgery for cyanotic heart.

Group A composed of 17 patients with mean age of 8.8±5.7 years and mean mPAP 15 .6±3.2 mmHg. There were 9 patients in group B with their mean age of 5.9±5.6 years and mean mPAP 21.2±1.3 mmHg while all of them had pulmonary vascular resistance < 3 WU.m^2. While 59 patients in group C, their mean age 5.4±4.9 years with their mean mPAP 47.2±18.1 mmHg. Despite these patient had PH by mPAP criteria, 42/59 had PVR ≥ 3 WU.m^2. There was no statistical significant among 3 groups in term of the age and percentage of great complex congenital heart disease.

	group A mPAP < 20 mmHg n=17	**group B mPAP 20-24mmHg n=9**	**group C mPAP ≥ 25mmHg n=59**
Age (year)	8.8±5.7 median=8	5.9±5.6 median=4.5	5.4±4.9 median=3.5
Sex (M:F)	9:8	3:6	33:26
mPAP (mmHg)	15 .6±3.2 median=16	21.2±1.3 median=21	47.2±18.1 median=43
PVR (WU.m^2)	1.4±0.7 median=1.5	1.1±0.4 median=1.2	5.7±4.2 median=5.3
Percentage of Simple and moderate shunt	47%	66%	64%
Percentage of great complex congenital heart	53%	22%	34%

Conclusion:

With the newly proposed PH criteria, there was 13% increase in number of patients diagnosed with PH in comparison with previous criteria for PH diagnosis. This group of patients, who had mPAP 20-24 mmHg, had pulmonary vascular resistance less than 3 WU.m2. Therefore, the increase number of patients, due to newly criteria for PH diagnosis, did not have a significant impact on patient management in term surgery management or pulmonary vasodilator therapy.