

# 3<sup>rd</sup> World Congress on CARDIOLOGY AND CARDIAC NURSING

March 25-26, 2019 | Amsterdam, Netherlands

Saeed Taiyari et al., J Cardiovasc Med Ther 2019, Volume 3

## HYPOTHERMIA AND BLOOD LACTATE DURING CARDIOPULMONARY BYPASS IN PEDIATRIC PATIENTS

Saeed Taiyari<sup>1</sup>, Zia Totonchi<sup>2</sup>, Pouya Farokhnezhad Afshar<sup>3</sup> and Sara Taiyari<sup>3</sup>

<sup>1</sup>Tehran University of Medical Sciences, Iran

<sup>2</sup>Shahid Rajaie Cardiovascular Medical and Research Center, Iran University of Medical Sciences, Iran

<sup>3</sup>University of Social Welfare and Rehabilitation Sciences, Iran

**Introduction:** Hypothermic perfusion is widely used in pediatric cardiac surgery units. The present study evaluated the effect of hypothermia severity on serum levels of lactate during Cardio Pulmonary Bypass (CPB) in the surgical repair of congenital heart defects in children.

**Methods:** 185 pediatric patients' candidate for the elective surgical repair for congenital heart disease were recruited. The patients' arterial serum lactate, central venous pressure, diuresis, glucose and arterial blood gases were measured and recorded in four time points including before the CPB, when cooling the patient, when warming the patient, after the CPB and upon admission to the intensive care unit (ICU).

**Results:** The mean age of the patients was  $28.1 \pm 19.6$  months. Lactate level significantly raised more quickly in the patients with hypothermia  $< 30$  compared to in those with hypothermia  $\geq 30$  ( $P < 0.001$ ). These two groups were significantly different in duration of CPB ( $P < 0.001$ ), duration of cross-clamping ( $P < 0.001$ ) and volume of blood filtered ( $P < 0.001$ ). No statistically significant differences in the volume of the red blood cell (RBC) transfused was observed between two groups ( $P = 0.12$ ).

**Conclusions:** Deep hypothermia is associated with higher blood lactate levels which may be associated with poor outcomes during and after CPB. It is recommended normothermia or mild hypothermia to be used during CPB in paediatrics. When using deep hypothermia is inevitable, patients are better to be strictly monitored and screened for adverse outcomes associated with hyperlactatemia.

## BIOGRAPHY

Saeed Taiyari has completed his MSc in critical care nursing and clinical perfusion in cardiac surgery from Tehran University of Medical Sciences. He has been as one of the main writers of some researches which mostly are at publication in high impact journals. He is senior perfusionist in congenital tertiary at Children Medical Center and is also collaborating with some research centers located at the hospital.

[s-taiyari@farabi.tums.ac.ir](mailto:s-taiyari@farabi.tums.ac.ir)



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