Machine Learning and Goal Direct Perfusion.

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Metabolism management plays an essential role during cardiopulmonary bypass (CPB). There are different metabolic management devices integrated to heart–lung machines; the most commonly used and accepted metabolic target is indexed oxygen delivery (DO$_2i$) (280 mL/min/m$^2$) and cardiac index (CI) (2.4 L/min/m$^2$), which can be managed independently or according to other metabolic parameters [1]. During cardiopulmonary bypass (CPB), the realization of Goal Directed Perfusion (GDP) involves the integration of different parameters that have a direct and indirect linear correlation [2]. We reported our experience in a graphical presentation of the central pictures with the interactions of the metabolic parameters on a case series of 500 CPBs. The blue color code shows a positive correlation the red code a negative correlation between the related parameters.

Machine learning has experienced a revolutionary decade with advances across many disciplines. There has been enormous interest in applying machine learning and artificial intelligence to healthcare and, in particular in cardiovascular perfusion and cardiac surgery. During the CPB the fluids on the GDP have an effect in increasing the flow rate, venous return, but have a negative effect on the oxygen delivery, predisposing to the consumption of blood products [3]. We think that integrating these graphs across multiple numbers will help in the future to understand the cause and effect relationships on various rehabilitation programs.
References


