

M-Number of Aortic Cannulas Applied During Hypothermic Cardiopulmonary Bypass

Authors : Won-Gon Kim

Abstract : A standardized system to describe the pressure-flow characteristics of a given cannula has recently been proposed and has been termed 'the M-number'. Using three different sizes of aortic cannulas in 50 pediatric cardiac patients on hypothermic cardiopulmonary bypass, we analyzed the correlation between experimentally and clinically derived M-numbers, and found this was positive. Clinical M-numbers were typically 0.35 to 0.55 greater than experimental M-numbers, and correlated inversely with a patient's temperature change; this was most probably due to increased blood viscosity, arising from hypothermia. This inverse relationship was more marked in higher M-number cannulas. The clinical data obtained in this study suggest that experimentally derived M-numbers correlate strongly with clinical performance of the cannula, and that the influence of temperature is significant.

Keywords : cardiopulmonary bypass, M-number, aortic cannula, pressure-flow characteristics

Conference Title : ICBBE 2015 : International Conference on Bioengineering and Biomedical Engineering

Conference Location : Istanbul, Türkiye

Conference Dates : November 27-28, 2015