Hemodynamics Under General Anesthesia in Glenn/Fontan Circulation?

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Received: 31 December 2020 / Accepted: 16 January 2021 / Published online: 6 February 2021
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Thank you for the opportunity to respond to questions raised by Dr. Schranz in his letter to the editor regarding the Methods of our recent publication “Pre-Fontan Cardiac Catheterization Data as a Predictor of Prolonged Hospital Stay and Post-Discharge Adverse Outcomes Following the Fontan Procedure: A Single-Center Study”. Thank you to Dr Schranz for taking the time to express his opinion on the matter of positive pressure ventilation and general anesthesia during cardiac catheterization in this fragile population. It is an honor to have a response from someone so accomplished in the field.

In his letter to the editor, Dr. Schranz presents questions regarding accuracy of data obtained during cardiac catheterization based on calculations vs measured data. Briefly, I completely agree with your concerns. We shared the possibility of data inaccuracy based on calculation and the fact our study was retrospective in the limitations. Additionally, our catheterization lab is undergoing process changes to address these exact concerns.

I was more intrigued by Dr. Schranz’s concerns regarding cardiac catheterization being performed under general anesthesia, intubated, with positive pressure ventilation, in the absence of spontaneous respiration among single ventricle patients. Admittedly, I do not have substantial experience with this approach, ultimately adding to my intrigue. Our understanding of cardio-pulmonary interactions makes this approach logical. Given my inexperience with this approach, I unofficially surveyed 6 well-established congenital heart

programs here in the USA, of which zero reported routinely performing pre-Fontan catheterizations extubated, under moderate sedation, although two reported doing so on a selective basis. Additionally, a review of the literature yielded only case reports/series discussing this approach. Nonetheless, this idea is exciting to me. I imagine your institution has significant experience and perhaps a protocolized approach. I think sharing experience from Institutions such as yours would be extremely valuable.

To answer your question, the anesthetic approach at my institution is decided by the anesthesiologist. As you stated, I would imagine this could become a relatively simple approach with appropriate anesthesia training, experience, and patience. In addition to obtaining more accurate data, the cost of general anesthesia, the risks of general anesthesia you outlined pertaining to single ventricle patients, and the potential detrimental neurodevelopmental effects of general anesthesia may support adopting such an approach.

I found Dr. Schranz’s letter enlightening. I hope he and others will consider sharing their data and experience as it could provide more accurate hemodynamic data and potentially reduced morbidity.

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