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Cooling Catheters for Selective Brain Hypothermia

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Cooling Catheters for Selective Brain Hypothermia

We read with interest “Endovascular Cooling Catheter for Selective Brain Hypothermia: An Animal Feasibility Study of Cooling Performance” by Cattaneo et al.¹ The authors achieved mild brain hypothermia by using a novel indwelling cooling catheter. We appreciate the authors’ acknowledgment of our work in selective brain cooling.² However they may have misunderstood the TwinFlo catheter evaluated in our study (ThermoPeutiX, San Diego, California). The TwinFlo inner coaxial balloon catheter is 9.5F, with an inner diameter of 2.0 mm (0.080 inches). This is well within the lumen size needed to perform simultaneous mechanical stent-retriever thrombectomy during selective brain cooling.

Reduction in brain metabolic demand is related to the depth of hypothermia.³ Brain cooling using the authors’ device was only mild (-4.2°C to -4.5°C) and took >2 hours to achieve. On the other hand, endovascular cold blood perfusion seems better able to achieve the very low temperatures (25°C – 26°C) necessary to avert ischemic stroke and can do so very rapidly ($<30^{\circ}\text{C}$ in a median of 15 minutes). We demonstrated a substantial reduction in stroke volume in our large-animal model, despite starting cooling well into the reperfusion phase and after 3 hours of focal ischemia.

Disclosures: Thomas K. Mattingly—RELATED: Grant: Heart and Stroke Foundation,* ThermoPeutiX,* Comments: HSF GIA 7273; ThermoPeutiX provided the TwinFlo catheters and assisted in data collection on catheter performance. Stephen P. Lownie—Travel/Accommodations/Meeting Expenses Unrelated to Activities Listed: Vice-President, Canadian Neurosurgery Society. *Money paid to the institution.

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