

# CORRESPONDENCE

## Keeping Cool in the Operating Room

*To the Editor:*

In the operating room, the ambient temperature might be uncomfortably warm for the surgical team, for several reasons. During off-pump surgery, the temperature might purposely be kept high. Without use of the heart-lung machine, it is important to avoid overcooling the patient, because rewarming can be difficult and take time. In tropical countries during summer, the atmospheric temperature might be so high that effective indoor cooling cannot be achieved. In some countries, power outages occur frequently, and uninterrupted electrical power is allocated to crucial infrastructure. Meanwhile, the surgical team is gowned and needs to stay focused.

We have devised a simple way to remain cool. A Clear-View® Blower/Mister (Medtronic, Inc.; Minneapolis, Minn) is used to direct a jet of oxygen toward the surgeon, at a flow rate of only 2 to 3 L/min. This device—a fixture in our operating room for 10 years now—is kept outside the sterile field, at the anesthesiologist's side.

Apart from the cooling, we think that the high oxygen concentration sharpens our senses and improves our surgical focus.

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## Consider a Mitochondrial Disorder when Left Ventricular Hypertrabeculation/Noncompaction is Associated with Renal Cysts

*To the Editor:*

We appreciated the article by Katukuri and colleagues<sup>1</sup> about the 37-year-old man who had left ventricular hypertrabeculation/noncompaction (LVHT) associated with polycystic kidney disease (PCKD). We wish to present some considerations that the authors might have been unable to discuss, given the length criteria for Images in Cardiovascular Medicine publications in the *Journal*.

The authors speculate that the PCKD was caused by mutations in the patient's *PCKD1* or *PCKD2* genes.

Polycystic kidney disease can arise from causes other than *PCKD* mutations.<sup>2</sup> Renal cysts might be a phenotypic manifestation of a mitochondrial disorder (MID). Because LVHT has been associated with MIDs, this type of metabolic defect needs to be excluded. It would be enlightening to know whether the patient had cerebral, ocular, otologic, endocrine, gastrointestinal, dermal, or blood cell abnormalities. In addition, was an MID identified in the family history, beyond PCKD and unspecified cardiac disease in the father? When family members of an affected patient are systematically screened genetically and echocardiographically, LVHT can often be found.<sup>3,4</sup>

We wish to point out that LVHT is not necessarily a rare abnormality of cardiac development; the condition can also be acquired.<sup>5</sup> Did the patient have previous echocardiograms that could be reviewed for the presence or absence of LVHT?

We respectfully disagree that cardiac magnetic resonance (CMR) is the gold standard for the diagnosis of LVHT: the condition might be missed on CMR, and the criteria to diagnose LVHT on CMR are vague.

Neuromuscular disorders (NMDs) have also been associated with LVHT.<sup>6</sup> Answers to these questions would be helpful: did the patient or his relatives undergo investigation for NMDs? Did the patient report symptoms indicative of an NMD? Was his creatine kinase or serum lactate level elevated? Did he have a history of sequelae during or after previous general anesthesia?

To our knowledge, at least 9 cases with LVHT and PCKD have been reported.

Overall, this interesting report would have profited from more information with regard to an MID or NMD, because the pathogenesis of LVHT is unclear.

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*This letter was referred to Dr. Neelima Katukuri, who responds as follows:*

We thank Drs. Finsterer and Zarrouk-Mahjoub<sup>1</sup> for their interest in our work.<sup>2</sup> In response to their questions, we offer the following:

- We thought about performing genetic testing; however, the patient could not afford it, and his insurance company did not approve further evaluation of any kind.
- The patient's father had died long before and no details were remembered about him. The patient had no siblings or children.
- The patient had no symptoms and had not undergone previous evaluations.
- We agree that several cases have been described in which left ventricular hypertrabeculation/noncompaction (LVHT) was not present at birth or on previous echocardiograms but developed during a patient's lifetime (acquired LVHT).

- The patient reported no symptoms indicative of a neuromuscular disorder and reported no history of complications during or after general anesthesia.
- We checked the patient's creatine kinase and serum lactate levels, and these were within normal limits.
- Because the pathogenesis of LVHT is unclear, any effort to clarify the cause of this enigmatic morphologic abnormality appears to be justified. However, in this case, approval to perform just the magnetic resonance imaging required multiple letters and telephone calls to the patient's insurance company.

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