
We thank Hiemann et al for their interest in our work.1 In their letter, they suggest that immunostaining for CD34, a marker of endothelial cells, should not be used for assessment of capillary density unless concomitant α-actin immunostaining is performed. In our research, capillaries were tagged and counted by 2 experienced pathologists in CD34-stained biopsy samples; microvessels and arterioles with stained endothelium were not included in the counting because their identification could be performed without concomitant α-actin immunostaining. In support of this approach, also used by other authors,2,3 we documented in cardiac allografts a capillary density of 645±179 capillaries/mm², which is virtually identical to that documented by Hiemann et al (667±147) using CD31 and α-actin immunostaining.4

We used a control group of nonallograft endomyocardial biopsy samples to demonstrate the occurrence of capillary rarefaction in the studied allografts. Although the subjects included in this control group were older than the allograft donors, as pointed out by Hiemann et al, the fact that they presented with more capillaries and less arteriolar obliteration cannot be attributed to being older. None of our allograft patients presented evidence of severe rejection that might potentially interfere with the obtained measurements.

Hiemann et al also voice their concern as to the potential influence of a time from cardiac transplantation that ranged from 1 to 82 months. From our perspective, this constituted an opportunity to assess variable degrees of microvascular disease and to correlate them with the obtained physiological measurements. Contrary to the opinion of Hiemann et al, coronary rarefaction is not specific to cardiac transplant vasculopathy and can be found in other heart conditions.3,5 We agree that a homogeneous terminology regarding coronary microcirculation is needed, and we hope that a consensus document will be generated in the near future with recommendations for investigators working in this field.

Disclosures

None.

References


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