Editorial Comment

The egg or the chicken?

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In this issue of the *Journal of Geriatric Cardiology*, Gao et al., in a report of increased ostial pulmonary vein diameter by multislice CT angiography reported a statistically significant enlargement of the pulmonary veins in patients with congestive heart failure (CHF). This finding alone should not be of any surprise as anatomic remodeling and general dilation of the cardiac chambers are well described in patients with CHF. What is thought provoking is the conjecture that pulmonary vein ostial dilation may play a role in the genesis and maintenance of atrial fibrillation. Multiple theories of the mechanism of atrial fibrillation exist, but it is safe to assume that dispersion of refractoriness in the left atrium is a necessary condition to maintain atrial fibrillation. Whether the mere anatomical change of the pulmonary vein ostia in CHF is sufficient to create this dispersion of refractoriness is a matter of hot debate.

This report by Gao et al. however, is important in the implication of the use of this novel imaging technique for the purpose of identifying and visualizing the pulmonary vein ostia for atrial fibrillation ablation.

The authors also raised an interesting issue in the relationship between atrial fibrillation and CHF. As the authors noted, CHF is a clinical syndrome of multiple etiologies, ranging from coronary disease to valvular pathologies. Whereas patients with CHF tend to be predisposed to atrial fibrillation, it is worth noting that patients with atrial fibrillation only, without any other primary cardiac anomalies, can end up having CHF, secondary to tachycardia mediated cardiomyopathy. It would be interesting to know if these patients start out with an increase in pulmonary vein ostial dilation as well.

Whereas this report is an interesting observational study, with important implications in the future use of this novel imaging technique, it is still a matter of conjecture from this preliminary study as to the etiology of atrial fibrillation in CHF. More studies will need to be done, recognizing the multiple etiologies of CHF, and it would be interesting to see if there is any difference between patients having CHF due to coronary disease versus from valvular diseases. Separating patients with different ejection fractions, duration of CHF, left atrial sizes and ostial pulmonary vein sizes might shed more light into the association between atrial fibrillation and CHF, caused or aggravated by enlarged pulmonary vein ostia.

Reference