



## Left ventricular clot: Newly known increased complication of air pollution in dilated cardiomyopathy (DCM)

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### Letter to Editor

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#### Dear Editor

Air pollution is one of the major health problems in the world that impaired cardiovascular function, and is associated with cardiovascular mortality.<sup>1</sup> Numerous studies showed that short-term and long-term exposure to air pollution are associated with cardiovascular mortality.<sup>2</sup> One of the most important pathology findings discussed in this regard is the thrombosis, which increases the cardiovascular mortality.<sup>3</sup> Increased inflammation and oxidative stress as well as hypercoagulation state by air pollution resulting in thrombosis;<sup>4</sup> and many clinical studies have showed that air pollution increased hospitalization and cardiac events as well as subclinical atherosclerosis, and also deep vein thrombosis and pulmonary embolism.<sup>4-7</sup> Till now, based on our knowledge, there is no report of increased left ventricular (LV) and also right atrium (RA) clot rate due to air pollution. Actually in recent months (from September to January), at our heart center in Tehran, Iran, one of the world's metropolitan areas with severe air pollution, we interestingly and unfortunately met a large number of cases with LV apical clot specially in patients with dilated cardiomyopathy (DCM) and also RA clot [with or without pulmonary thromboendarterectomy (PTE)]; with near 30% increase in rate of them. Some of these patients had a history of physical inactivity while surprisingly the rest of them had no risk factor. LV clot occur rarely in patients with DCM and sinus rhythm (13%).<sup>8</sup> While in these days, we saw patients even with mild regional wall motion abnormalities (RWMA) who had large LV clot. In addition, this complication occurred with higher rate in patients with DCM during these days. Noticeable point is that insomuch increase in thrombosis was not seen in the other months when the air was clear. Based on the findings

documented in our heart center, we aim to propose a hypothesis that air pollution is also associate with increase LV and also RA clot in mentioned patients. This new finding that we report in this paper could be a new research topic for researchers and future studies in cardiovascular system. We suggest that further clinical study are needed to confirm this hypothesis, and also determine which one of patients are susceptible to these complications of air pollution.

#### Conflict of Interests

Authors have no conflict of interests.

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