should be effective in endemic areas with known tick seasons, when infestations are higher.

Our findings indicate the zoonotic potential of dog ticks in South Korea. Physicians and public health officers therefore need to be aware of the high potential and clinical complexity of infection with *R. raoultii* and other tickborne pathogens in order to confirm suitable testing and treatment needs in endemic areas (*10*). Therefore, we strongly recommend continuous evaluation of the potential public health threat posed by infected ticks to humans in South Korea. A better understanding of local tick species, including *H. longicornis*, and a more thorough characterization of TBP agents, such as *R. raoultii*, are critical.

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COMMENT LETTERS

Pulmonary Embolism and Increased Levels of D-Dimer in Patients with Coronavirus Disease

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To the Editor: We read with great interest the recent report by Griffin et. al. (*1*). Griffin et al. reported on 3 patients in whom pulmonary embolism developed after the cytokine storm phase of coronavirus disease (COVID-19); the patients were treated with steroids and tocilizumab. We have observed a transient elevation of D-dimer in patients after tocilizumab treatment, which leads to an interesting discussion about whether the pulmonary embolism observed in these COVID-19 patients was due to a persistent hypercoagulable state in the late phase of the disease or a transient one related to tocilizumab.

Tocilizumab is a humanized antihuman interleukin-6 (IL-6) receptor monoclonal antibody that inhibits IL-6 signaling. Use of tocilizumab in the COVID-19 pandemic has been growing. It

presumptively targets the cytokine storm phase of the disease by inhibiting the IL-6 pathway (*2*). However, IL-6 has a multifaceted role in venous thromboembolism, and Zhang et al. has reported that upregulation of IL-6 as the result of aberrant downregulation of miR-338-5p may lead to venous thromboembolism (*3*).

Conversely, using a rat model, Nosaka et al. demonstrated the importance of iIL-6 in resolving thrombi through macrophage recruitment and proteolytic enzymes induction (*4*). The absence of IL-6, in fact, leads to the thrombus growing (*4*). Moreover, tocilizumab has been reported to decrease factor XIII, chemerin, and plasminogen activator inhibitor levels (*5*). Factor XIII is involved in fibrin stabilization; blocking this factor may lead to fibrin clot instability, causing microthrombi to dislodge, increasing the likelihood of thrombophilia.

The association of tocilizumab with thrombosis is not clearly understood. However, the potential for adverse effects that we describe may warrant a short period of therapeutic anticoagulation before and after administering tocilizumab. The hypercoagulable state reported in the findings by Griffin et. al. may represent a side effect of tocilizumab rather than being a condition secondary to COVID-19, or it could result from a combination of both.

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Work Environment Surrounding COVID-19 Outbreak in Call Center, South Korea

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To the Editor: I read with interest the recent synopsis by Park et al. (*1*) about a coronavirus disease outbreak in a call center, in which I was involved as a field epidemiologist. I would like to share my perspective as an occupational physician.

The work environment of the call center was an important reason for the high attack rate on the 11th floor. The width of the desks was 1.2 m, and most employees had worked without face masks despite the high risk for severe acute respiratory syndrome coronavirus 2 transmission associated with having persons continuously engaged in phone calls through headsets in an enclosed space. Call centers are known for their poor working conditions, the lack of power among employees, and high demands of the job (https://www.diva-portal.org/smash/get/diva2:20713/fulltext01.pdf).

In addition, presenteeism (i.e., attending work while ill) also affected the high attack rate (*2*,*3*). At least 10 employees continued to work despite having symptoms. In South Korea, sick leave and other benefits are not available for most workers (*4*). Given the lack of sick leave and concerns about disincentives for absences, employees could not have left the workplace easily. Without sick leave, workers are reluctant to apply for workers' compensation, the only alternative, and employers avoid registering workplace accidents for fear of penalties. These factors explain why the occupational accident rate does not reflect reality. A paradoxical discrepancy has been observed between South Korea and the average European Union country in both lower occupational accident rates (484 vs. 1,558/100,000 workers) and higher fatal accident rates (10.54 vs. 1.65/100,000 workers) (*5*).

The outbreak in the call center reflects the work environment and compensation system in South Korea. To prevent transmission of severe acute respiratory syndrome coronavirus 2 in the workplace, South Korea needs not only improvements in physical working conditions (e.g., use of physical distancing and telework) but also introduction of sick leave and a more accessible workers' compensation system.