Should 2016 Criteria for Macrophage Activation Syndrome be applied in children with Kawasaki disease, as well as with systemic-onset juvenile idiopathic arthritis?

We read with deep interest the paper by Ravelli *et al*,[1] who developed new criteria for the classification of macrophage activation syndrome (MAS) in patients with systemic-onset juvenile idiopathic arthritis (So-JIA). The hemophagocytic lymphohistiocytosis (HLH) diagnostic guidelines[2] have been successfully used in the management of primary HLH, but there have been several limitations to their use in secondary HLH or MAS complicating systemic inflammatory disorders including So-JIA.[3 4] In practice, the new criteria will be a useful tool for resolving problems in diagnostic or therapeutic approaches to these diseases. However, we are interested in whether the application of these criteria is limited to rheumatic diseases or can be extended to other causes of secondary HLH or MAS, such as Kawasaki disease (KD) and systemic infectious diseases in children.

KD is included on the list of important causes of MAS in childhood.[5] MAS in children with KD has led to similar challenges in early recognition, prompt treatment and distinction between KD and MAS.[5 6] This highlights the fact that MAS is a heterogeneous syndrome complex encompassing a broad spectrum of clinical features. Compared with the HLH diagnostic guidelines, the new diagnostic criteria will be highly sensitive and specific in children with KD, as well as those with So-JIA. Accordingly, we suggest that these new criteria should be used for MAS in children with KD and should be extended to any other systemic inflammatory disorders causing secondary HLH or MAS.

Given the large degree of overlap between So-JIA and MAS, active So-JIA and MAS may be considered a single entity within a spectrum of severity.[4] We cautiously presumed the possibility of similar relationships between refractory KD and MAS. The authors noted in their summary the importance of application of the new criteria through clinical studies. We plan to apply the new criteria for MAS in children with KD refractory to a second infusion of intravenous immunoglobulin in order to determine the relationship between refractory KD and MAS.

We respect the contributions of the authors and would be very interested in the authors' response to our opinions.

Seung-Beom Han, Soo-Young Lee, Dae-Chul Jeong, Jin-Han Kang

Department of Pediatrics, The Catholic University of Korea, Seoul, Korea

Correspondence to Professor Soo-Young Lee, Department of Pediatrics, Incheon St. Mary's Hospital, The Catholic University of Korea, 56, Dongsu-ro, Bupyeong-gu, Incheon, 21431, Korea; sylee@catholic.ac.kr

Contributors Han SB: writing; Lee SY: concept, writing; Jeong DC and Kang JH: reviewing, revising.

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