THE DIAGNOSTIC KAWASAKI DISEASE GENE EXPRESSION PROFILING (KIDS-GEP) CLASSIFIER HAS A GOOD PERFORMANCE IN BOTH COMPLETE AND INCOMPLETE KAWASAKI DISEASE PATIENTS

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Kawasaki disease (KD) is a systemic vasculitis that can result in coronary artery aneurysms (CAA). Treatment with intravenous immunoglobulin (IVIG) is effective against CAA, but should be started as early as possible within the first 10 illness days. Diagnosing KD can be challenging, especially in patients with incomplete KD, who present with fewer clinical signs but have similar CAA risks. Studies showed that up to 1 in 6 KD patients are diagnosed after 10 illness days. In this study, we retrospectively investigate if the previously described KiDs-GEP classifier, a blood-based 12-gene host response classifier that aids diagnosis of KD, identifies both complete and incomplete KD patients in an independent US cohort.

We performed the KiDs-GEP classifier in 81 KD patients (14.8% incomplete KD) and 324 febrile controls who had ≥1 clinical criterion for KD. Blood samples were obtained within the first 7 illness days and before IVIG treatment. All patients were under 18 years of age and diagnosed between 2010 and 2019 at Rady Children's Hospital in San Diego.

The KiDs-GEP classifier distinguished KD patients from febrile controls with an area under the curve of 0.910, a sensitivity of 88.9% and a specificity of 80.6%. In the subset of complete and incomplete KD patients, the sensitivity was 88.4% and 91.7%, respectively.

The KiDs-GEP classifier correctly identified 88.9% of KD patients in the first week of illness and performed similarly for complete and incomplete KD patients. These results indicate that the KiDs-GEP classifier can be a valuable tool to aid early diagnosis of KD.