ABSTRACT

BACKGROUND: Myxoma resistance protein A (MxA) is induced during viral infections. MxA testing could be helpful to differentiate between viral and bacterial infections.

METHODS: A prospective multicenter cohort study was performed in pediatric emergency departments. MxA blood values were measured in children with confirmed viral or bacterial infections, uninfected controls, and infections of unknown origin. First patients were used to determine MxA threshold for viral infection. The diagnostic performance of MxA was determined by using receiver operating characteristic (ROC) analysis. Sensitivities (Se), specificities (Sp), and positive and negative likelihood ratios (LR+, LR-) were calculated.

RESULTS: The study included 553 children; 44 uninfected controls and 77 confirmed viral infections (mainly respiratory syncytial virus and rotavirus) were used to determine an MxA threshold at 200 ng/mL. In the 193 other patients with confirmed infections and uninfected controls (validation group), MxA was significantly higher in patients with viral than in those with bacterial infections and uninfected controls (P, .0001). The area under the ROC curve (AUC) were 0.98, with 96.4% Se and 85.4% Sp, for differentiating uninfected from virus-infected patients and 0.89, with 96.4% Se and 66.7% Sp, for differentiating bacterial and viral infections. MxA levels were significantly higher in patients with clinically diagnosed viral versus clinically diagnosed bacterial infections (P, .001). Some patients with Streptococcus pneumoniae infections had high MxA levels. Additional studies are required to elucidate whether this was due to undiagnosed viral coinfections.

CONCLUSION: MxA is viral infection marker in children, at least with RSV and rotavirus. MxA could improve the management of children with signs of infection.