Background/aim: To determine the role of matrix metalloproteinases (MMPs) and their relationship with the clinical course of community-acquired pneumonia (CAP).

Materials and methods: Sixty-two consecutively hospitalized patients with CAP were enrolled and their pneumonia severity index (PSI), time to clinical stability (TCS), treatment response, and complications were recorded. The pre- and posttreatment serum concentrations of MMPs and their inhibitors were analyzed by ELISA. The activities of MMPs were evaluated by gelatin zymography.

Results: MMP-2 and -9 serum levels and their activities were higher in CAP patients than controls (P < 0.001 and P < 0.001, respectively). Low-risk patients had lower levels of MMP-2 and TIMP-1 than high-risk patients (P = 0.044, P = 0.001, respectively). Pretreatment serum TIMP-1 level was higher in patients with TCS of >3 days (P = 0.004) and was correlated with oxygenation and PSI scores. Posttreatment serum levels of MMP-9 and TIMP-1 were decreased after antibiotics (P = 0.0001 and P = 0.017, respectively).

Conclusion: Although MMP-2, MMP-9, and TIMP-1 correlate with many poor prognostic factors, more studies are required to prove their possible role in predicting the severity of CAP.