

Influence of glucocorticoids on markers of inflammation in community-acquired pneumonia

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BACKGROUND

Glucocorticoids are frequently prescribed in inflammatory diseases. It has been suggested that glucocorticoids interfere with inflammatory marker levels.^{1,2,3}

We investigated the influence of prednisone on classical and novel inflammatory markers in community-acquired pneumonia (CAP).

METHODS

We evaluated levels of C-reactive protein (CRP), procalcitonin, leukocyte and neutrophil count in a prospective randomized, double-blind, placebo-controlled multicenter trial which compared prednisone 50 mg for seven days to placebo in patients hospitalized with CAP.⁴ We performed Mann-Whitney-U-tests to compare biomarker levels between groups on day 1 before the first administration of prednisone and thereafter on days 3, 5, 7 and discharge.

RESULTS

335 patients in the prednisone group and 350 patients in the placebo group were evaluated.

At baseline, all investigated marker levels did not differ between prednisone and placebo group.

At days 3, 5, and 7, CRP levels were significantly lower in the prednisone group than in the placebo group ($p < 0.001$ for each time point; see figure 1).

For procalcitonin, this attenuating effect of glucocorticoids on circulating levels was not visible ($p < 0.05$ for all time points; see figure 2).

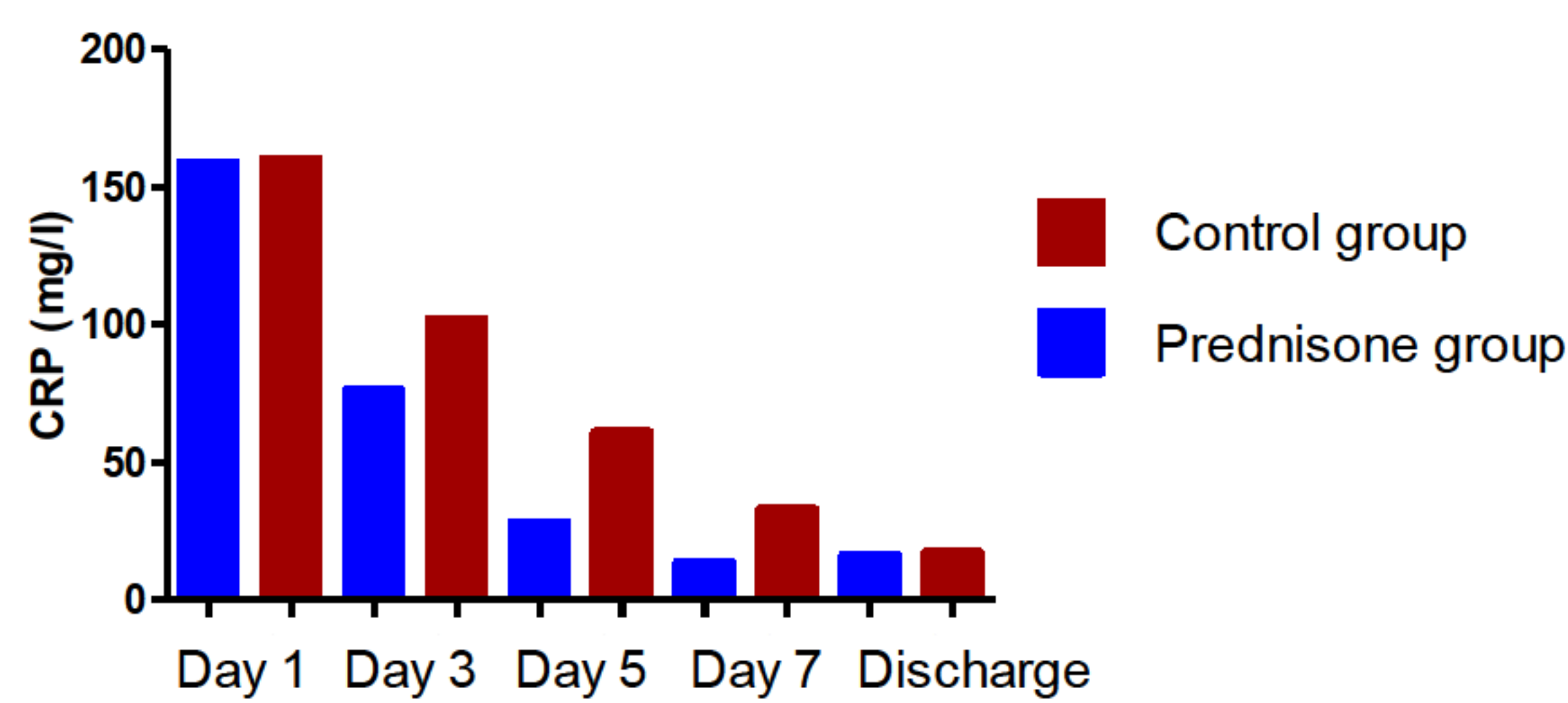


Figure 1. CRP levels during hospitalization

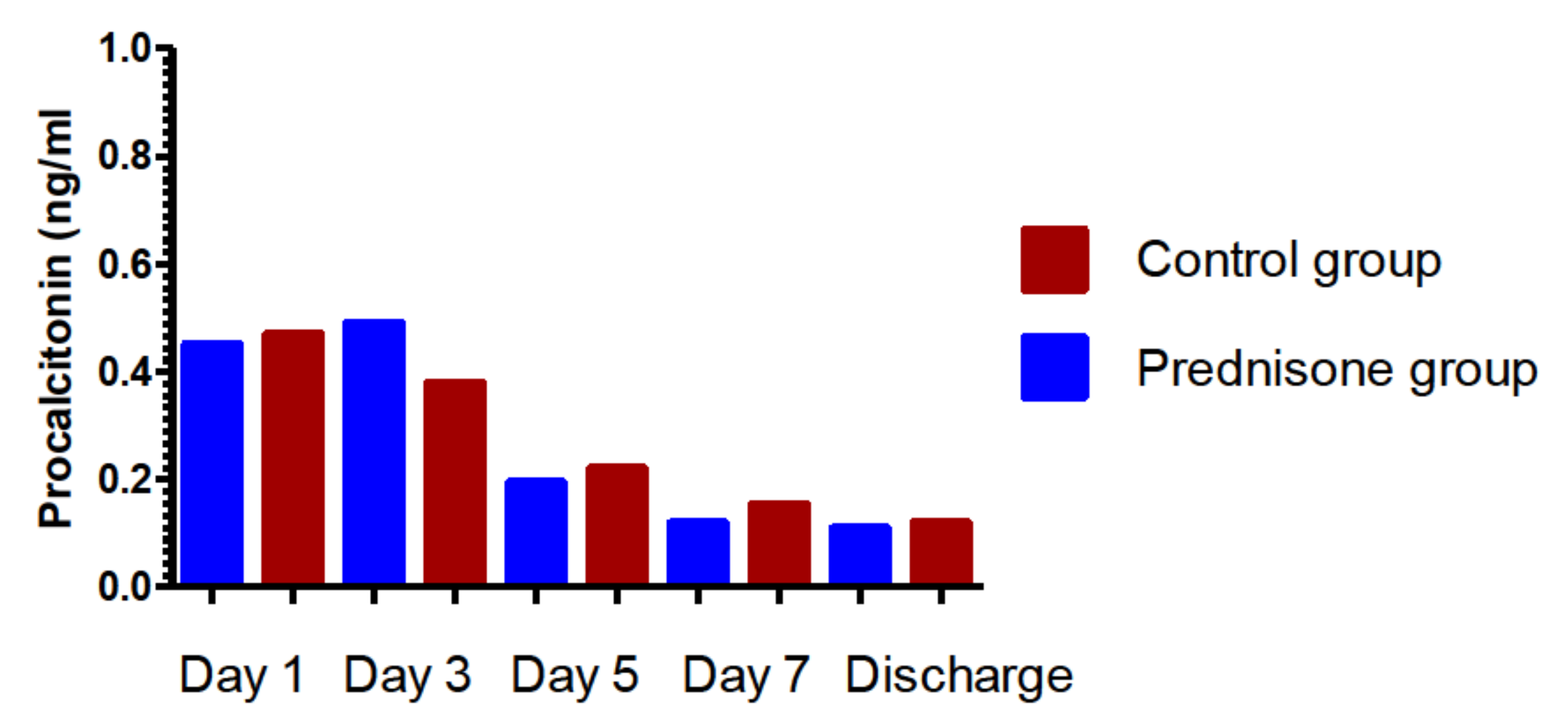


Figure 2. Procalcitonin levels during hospitalization

Leukocyte and neutrophil count were higher in the prednisone group during administration of glucocorticoids ($p < 0.0001$ for all time points including discharge (see figures 3 and 4).

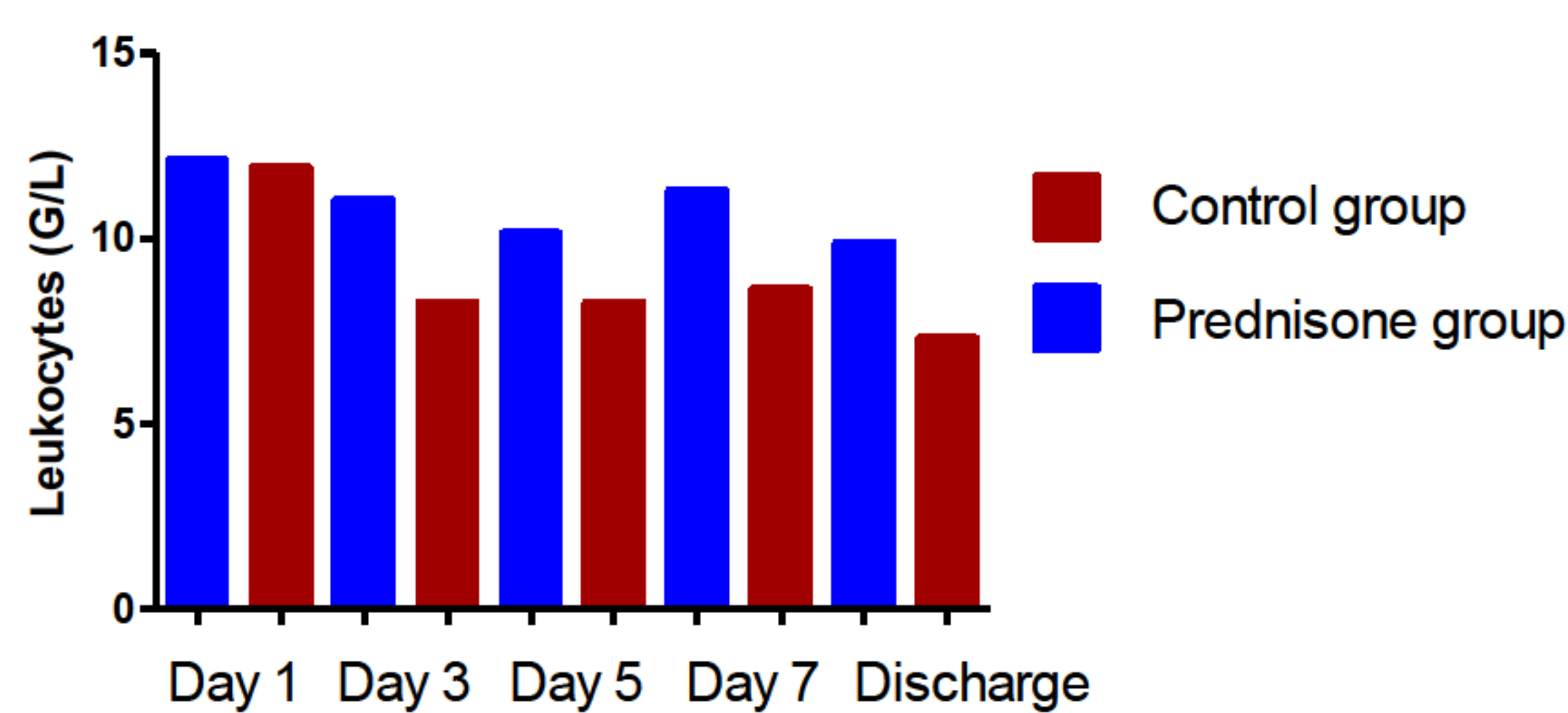


Figure 3. Leukocyte count during hospitalization

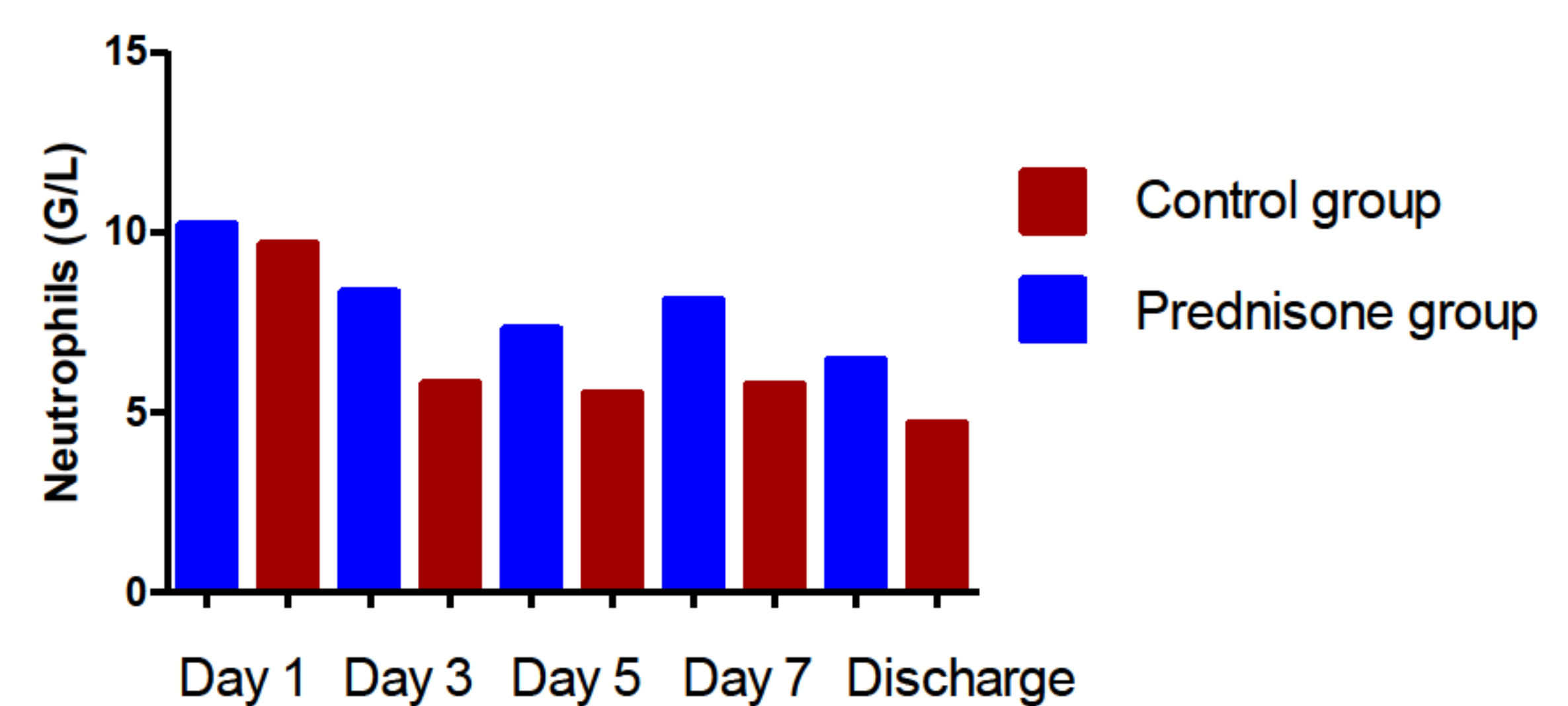


Figure 4. Neutrophil count during hospitalization

CONCLUSION

Administration of glucocorticoids in patients with CAP

- lowers CRP levels
- increases leukocyte and neutrophil count
- does not influence procalcitonin levels

Therefore, procalcitonin may be a more adequate inflammatory marker to measure treatment response in patients with an infectious disease receiving glucocorticoids.

REFERENCES

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