Procalcitonin-Guided Use Of Antibiotics For Lower Respiratory Tract Infection

SUMMARY

- Procalcitonin is a peptide marker being used more frequently to follow bacterial infections (e.g., high levels indicate new or worsening infection and lower levels no or resolved infection).
- Several trials have shown that using procalcitonin can decrease unnecessary antibiotic use in lower respiratory tract infections.
- This was a multicenter randomized trial asking whether or not procalcitonin levels can reduce unnecessary use of antibiotics in lower respiratory tract infections.
- ProACT (Procalcitonin Antibiotic Consensus Trial) conducted at 14 ED’s in the US with 1,656 patients age >18 who presented with lower respiratory tract infections.
- Patients were randomized to either the procalcitonin arm (826) or usual care (830).
- The procalcitonin group had the following guidelines: <0.1 ug/dl = strongly discourage antibiotics, 0.1-0.25 = discouraged, >0.25-0.5 = recommended, and >0.5 = strongly recommend. Treating clinicians could also use clinical judgement to override the rules.
- The primary outcome was total number of antibiotic days between the two groups and there was no difference (mean 4.2 days for procalcitonin group vs. 4.3 days for usual-care group).
- Procalcitonin was negative in about 80% of cases, clinicians followed guidelines 72.9% of the time (deviated based on suspicion for bacterial infection or acute COPD) and there were no significant differences in adverse outcomes or even antibiotic use between the two groups.

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EDITOR’S COMMENTARY: This was a multicenter randomized clinical trial looking at procalcitonin to guide antibiotic use in lower respiratory tract infections. The authors found no significant difference in overall days of antibiotic use for those in the procalcitonin-group vs usual care. There were also no differences in adverse outcomes. So it didn’t do what it was supposed to do – why not? I think it just didn’t add much to clinical judgment in these cases – patients in the low-tier procalcitonin groups also had much fewer clinical features of infection. Also, the clinicians sampled here just seemed to nail it – that is to say they did really well with low prescribing rates in the control group, so maybe just couldn’t improve at these places. Although, of all the labs upcoming I think procalcitonin has the most promise to be useful. However, in this study it did not change our practice or decrease antibiotic use in a patient cohort in which we were on the fence after an initial evaluation.