

Using PCT can Decrease Antibiotic Exposure in Elderly Hospitalized Patients with Pneumonia



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[Gavazzi G, Drevet S, Debray M, Bosson JL, Tidadini F, Paccalin M, de Wazieres B, Celarier T, Bonnefoy M, Vitrat V. Procalcitonin to reduce exposure to antibiotics and individualise treatment in hospitalised old patients with pneumonia: a randomised study \[published correction appears in BMC Geriatr. 2023 Mar 30;23\(1\):189\]. BMC Geriatr. 2022;22\(1\):965. doi:10.1186/s12877-022-03658-4](#)

The PROPAGE* study aimed to evaluate the interest of a strategy using serial measurements of procalcitonin (PCT) to reduce the duration of antibiotic therapy in elderly patients with pneumonia compared with conventional treatment strategies.

PROPAGE study design:

- Interventional, randomized, comparative, open-label
- Took place from December 2013 to June 2016 in 8 geriatric units (6 French hospitals)
- Inclusion criteria: patients \geq 80 years of age admitted for pneumonia, initiated antibiotic treatment for pneumonia in the previous 48 h, PCT levels evaluated prior to treatment initiation at Day 0
- The Per Protocol group included 83 patients: 26 for the PCT group and 57 for the control group
- PCT was assessed in both groups on Days 2, 4, 6, and 8 post-admission, then after discharge or on Day 15 and physicians recommended antibiotic discontinuation depending on PCT levels on the aforementioned days
- Two decision-making PCT-based algorithms were used to guide antibiotic therapy in the PCT group, corresponding to assessments/decisions on Day 2, and then on Days 4, 6, and 8.

Results:

- In the PCT group, the median length of antibiotic treatment was 8 days, while in the control group it was 10 days ($p = 0.001$).
- The PCT group had an antibiotic persistence rate of 54% on Day 6 and 44% on Day 8, while the control group had a persistence rate of 91% on Day 6 and 73% on Day 8
- The recovery rates were comparable between the two groups, with 84% in the PCT group and 89.5% in the control group
- **Measuring PCT levels between Days 4 and 6 could help clinicians in their decision to stop antibiotic treatment earlier**

In conclusion, PCT serial measurement along with a PCT-based algorithm may aid in reducing the duration of antibiotic therapy in elderly patients with no adverse effects, even if the decisions based on the algorithm were not fully adhered to.

*PROPAGE: PROcalcitonine chez les Patients Agés (Procalcitonin in Elderly Patients)



This study showed, for the first time, that the use of a PCT-based algorithm significantly reduced the exposition to antibiotic therapy in a very old, and disabled patient population hospitalised for pneumonia without affecting their recovery,” concluded the study authors.