

Delaying antibiotics for neutropenic fever may not affect survival of cancer inpatients

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In cancer patients with neutropenic fever, delaying antibiotic treatment past 60 minutes from the time of fever detection does not reduce the short-term chance of survival, according to a study in the *American*

Journal of Medical Quality.

Neutropenia—low levels of white blood cells called neutrophils, which fight infection—develops in more than 80% of patients who receive chemotherapy for a blood cancer. It occurs because chemotherapy destroys neutrophils along with tumor cells.

A fever in a patient with neutropenia is considered a [medical emergency](#), according to Adam Binder, MD, of Thomas Jefferson University Hospital in Philadelphia, and colleagues. The fever signals a severe decrease in neutrophils and therefore a compromised ability of the immune system to ward off infections. Neutropenic fever is defined as a temperature of at least 101°, or a sustained temperature of at least 100.4° for an hour or more.

The Infectious Disease Society of America and the American Society of Clinical Oncology have both published guidelines for treating outpatients who have neutropenic fever. Both organizations call for administering an intravenous antibiotic within 60 minutes after the fever is detected. The recommendation about antibiotics is also often applied to the treatment of hospital inpatients, but there's no clear evidence that's appropriate.

Comparing inpatients who did or did not receive antibiotics during the recommended treatment window

Dr. Binder and his colleagues looked back at data on 187 patients at their hospital who had developed neutropenic fever. Their main goal was to see whether delays in [antibiotic treatment](#) affected short-term survival.

Only 14% of patients received antibiotics within 60 minutes of developing neutropenic fever. Their survival rate 6 months later wasn't

significantly better than the survival rate of patients who received antibiotics later than recommended.

Further analysis identified several factors that had a statistically significant association with the risk of death:

- Patients with insurance had a 72% lower risk of death than those without insurance
- Patients with at least one other major medical condition had a 2.7 times greater risk of death than those with blood cancer alone
- Patients who were treated with antibiotics within 40 minutes actually had a 5.7 greater risk of death than those who didn't receive antibiotics so quickly

A possible explanation for the last finding, the researchers say, is that patients who received antibiotics within 40 minutes "had other symptoms that yielded a concerning clinical picture, thus leading to a timelier administration of antibiotics, but ultimately a worse clinical outcome."

Guidelines for treatment of outpatients may not apply to hospitalized patients

Even a delay of more than 4 hours wasn't long enough to affect survival, Dr. Binder and his colleagues determined. That result is consistent with information from previous studies of inpatients, they say.

The authors believe existing treatment guidelines are appropriate for patients with neutropenic fever who are treated in a physician's office or an emergency department, but other factors must be considered for patients who have been admitted to a hospital.

"Unlike neutropenic [fever](#) patients presenting to the [emergency department](#), where true time to antibiotic administration may often be many hours or even days before arrival, a few hours long [delay] in the hospital may not be sufficiently long enough to cause significant patient harm," the author say.

More information: Jordan Villars et al, Delay in Time to Antibiotics for De Novo Inpatient Neutropenic Fever May Not Impact Overall Survival for Patients With a Cancer Diagnosis, *American Journal of Medical Quality* (2022). [DOI: 10.1097/JMQ.0000000000000093](https://doi.org/10.1097/JMQ.0000000000000093)

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