Blood culture results pre- and post- antimicrobial administration in the Medicine Intensive Care Unit: A retrospective study in South Bronx

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Background

Campaign Hour-1 bundle stipulates that obtaining a blood culture and administering antibiotics within 1 hour is a critical determinant of survival. However, the diagnostic sensitivity shortly after antibiotic administration remains unknown.

Method

Adult patients (> 18 years of age) admitted to the **Medicine Intensive Care Unit** in Lincoln Medical Center, located in South Bronx, New York City, from **09/2019 to 12/2019**.

Result

Of 327 patients screened, 196 met enrolment criteria and 253 sets of blood cultures underwent analysis. Blood cultures grew bacteria in 21.8% of pre-antimicrobial group whereas 26.9% grew bacteria in post-antimicrobial group (p=0.37). 25.9% of patients received antibiotics within 1 hour before blood culture sampling, while 34.0% of patients received antibiotics >1 hour prior to obtaining blood culture. There is **no significant mortality difference** between those who received antibiotics prior to drawing blood culture versus those who received antibiotics after blood culture was drawn (p=0.15).

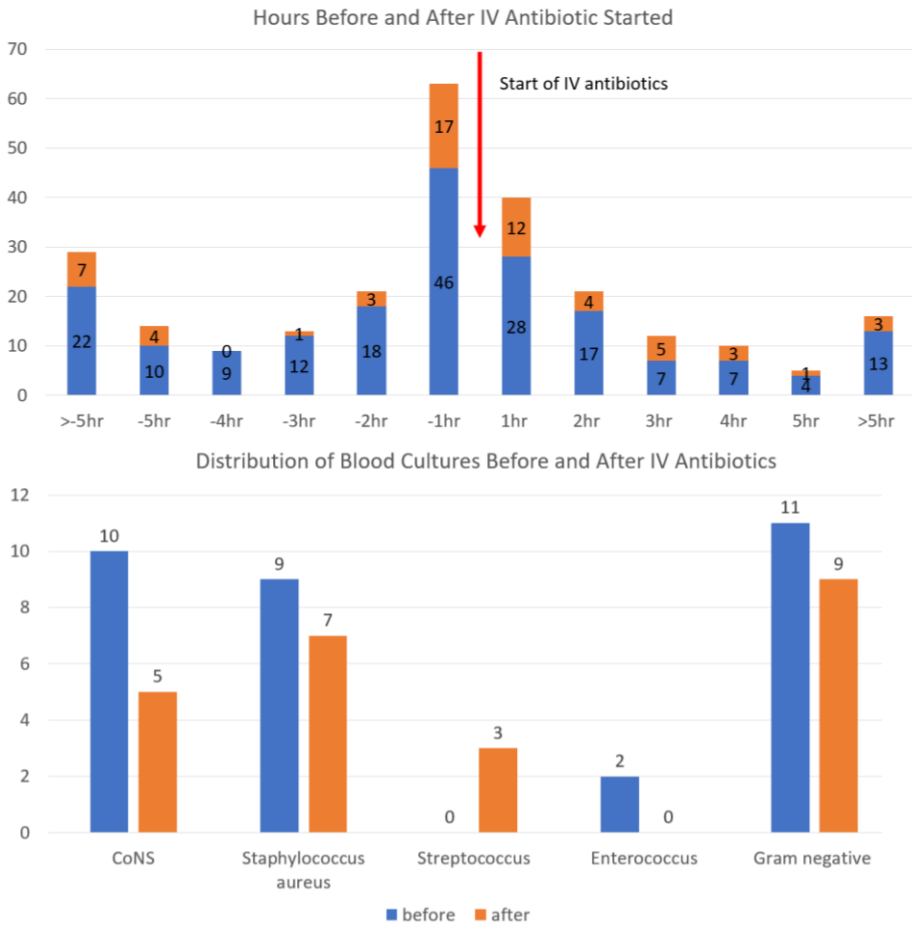

Table 3. Initial antimicrobial agent and 30-day mortality

	Blood culture before antibiotic (N = 118)	Blood culture after antibiotic (N =78)	*p* valve
Initial antimicrobial agent			
Ceftriaxone +/- Azithromycin or Doxycycline	31	25	$p = 0.42$
Ceftriaxone plus Vancomycin +/- other antibiotic	10	4	$p = 0.41$
Ceftriaxone plus other antibiotic	13	0	$p < 0.05$
Cefepime +/- Azithromycin or Doxycycline	21	17	$p = 0.58$
Cefepime plus vancomycin +/- other antibiotic	8	5	$p = 1.00$
Cefepime plus other antibiotic	5	3	$p = 1.00$
Piperacillin-tazobactam +/- Azithromycin or Doxycycline	13	8	$p = 1.00$
Piperacillin-tazobactam plus vancomycin +/- other antibiotic	6	4	$p = 1.00$
Piperacillin-tazobactam plus other antibiotic	2	1	$p = 1.00$
Carbapenem +/- other antibiotic	1	2	$p = 0.56$
Others	8	9	$p = 0.30$
30-day mortality	20	20	$p = 0.15$

Reference

Hourly Effect of Pretreatment With IV Antibiotics on Blood Culture Positivity Rate in Emergency Department Patients
Blood Culture Results Before and After Antimicrobial Administration in Patients With Severe Manifestations of Sepsis: A Diagnostic Study
ED door-to-antibiotic time and long-term mortality in sepsis