

BACKGROUND

- For neonates ≤60-days-old with temperature instability (TI), cerebrospinal fluid (CSF) culture is standard to assess for bacterial meningitis.
- Empiric antibiotics may be administered awaiting CSF culture results, requiring 2-3 days.
- Meningoencephalitis PCR panel (MEP) allows identification of meningitis in hours; CSF MEP became available at our institution 12/2016.

OBJECTIVE

- We hypothesized MEP use would decrease the duration of antimicrobial use in infants with TI and negative CSF bacterial cultures.

METHODS

- Inclusions:** Neonates ≤60-days-old with TI evaluated for meningitis 1/12-1/22 with negative CSF bacterial cultures.
- Exclusions:** Intracranial device, surgery, structural/neurovascular abnormality, head trauma.
- Retrospective electronic medical record review.
- Patients with negative CSF cultures grouped as:
 - Group A: MEP available, done (12/16-1/22)
 - Group B: MEP available, not done (12/16-1/22)
 - Group C: MEP not available (1/12-11/16)
- Compared median (Q1, Q3) hospital length of stay (LOS), antimicrobial length of therapy (LoT), and days of therapy (DoT, sum of all antimicrobials) by patient group.
- Sub-analysis for those receiving antibacterials before CSF culture obtained.

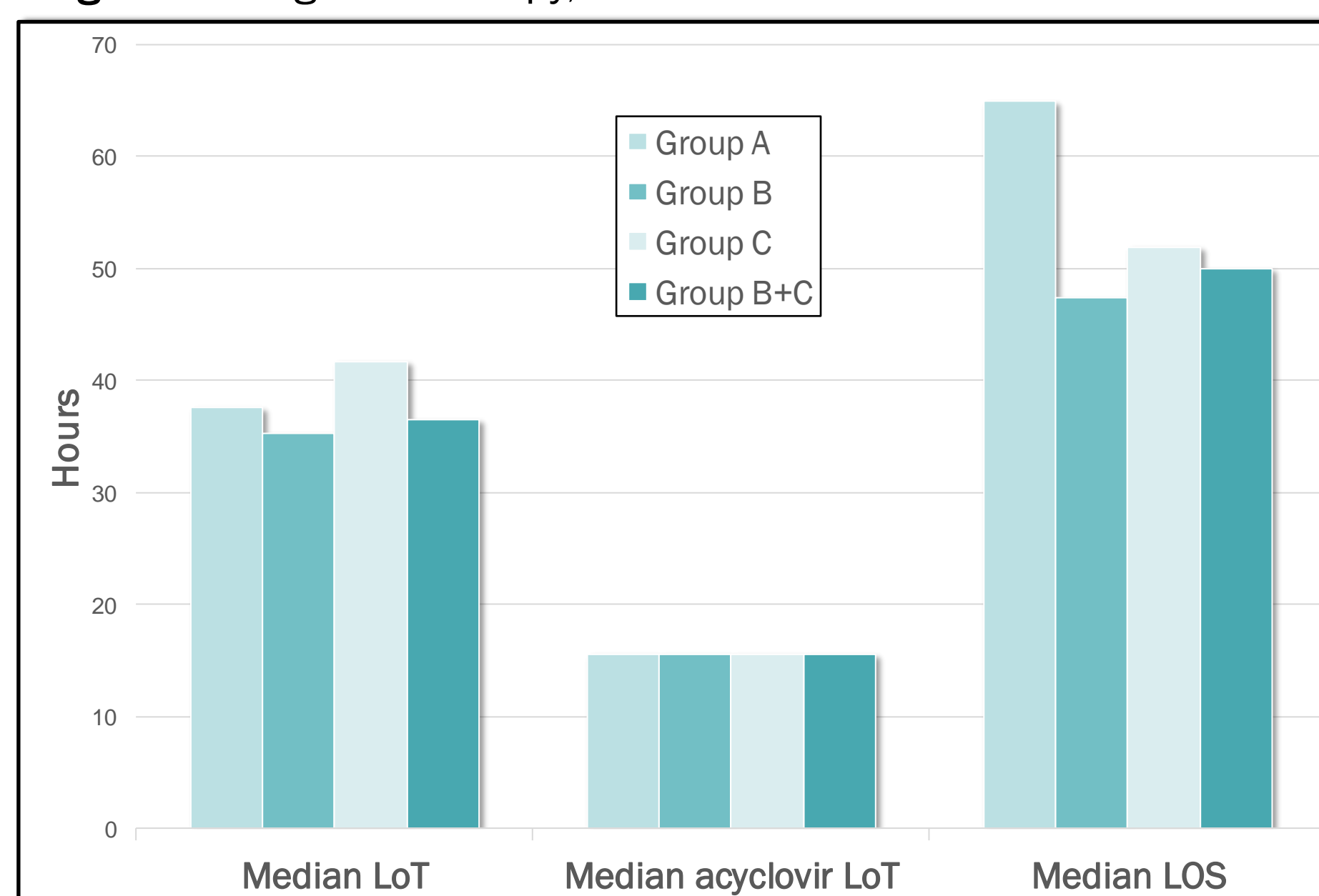
RESULTS

Table 1. Baseline Patient Characteristics

	Group A (MEP done)	Group B (MEP not done)	Group C (MEP not available)
Number per group	164	999	1168
Sex, female (%)	82 (50)	452 (45)	547 (47)
Age, median (days)	23.1	22.8	29.5
Race			
Asian	8 (5)	40 (4)	45 (4)
Black/AA* (%)	33 (20)	275 (28)	365 (31)
White/Caucasian (%)	105 (64)	595 (60)	655 (56)
Multiracial (%)	9 (5)	45 (5)	29 (2)
Other**/Refused(%)	9 (5)	44 (4)	74 (6)
Ethnicity			
Hispanic/Latino (%)	34 (21)	159 (16)	238 (20)

*AA = African American; **Other = Alaskan Native, American Indian, Native Hawaiian, Pacific Islander, or unknown

Figure 1. Length of Therapy, Full Patient Cohort



p<0.001 for LOS between group A (MEP done) and groups B+C (MEP not done)

Table 2. Median Days of Therapy, Full Patient Cohort

	Group A	Group B	Group C	Group B+C
DoT (IQR)	3.0 (2.0, 4.5)	2.4 (1.7, 3.2)	3.0 (1.6, 3.8)	2.7 (1.7, 3.5)

p=0.002 for DoT between group A and groups B+C

Table 3. Median LOS, LoT, and DoT in Hours for Patients Treated with Antibacterials Before CSF Culture Obtained

	Group A	Group B	Group C	Group B+C
N per group	72	60	80	140
LOS (IQR)	72 (49, 115)	53 (44, 99)	67 (54, 159)	63 (49, 138)
LoT (IQR)	39 (32, 55)	39 (30, 50)	48 (40, 63)	46 (36, 58)
DoT (IQR)	3 (2, 5)	3 (2, 4)	4 (3, 5)	4 (3, 5)

p=0.0507 for LoT between group A and groups B+C

CONCLUSION

- Meningoencephalitis PCR Panel use did not shorten LoT for neonates with temperature instability and negative CSF cultures.
- Longer DoT and LOS when MEP was done suggests selection bias in usage.
- MEP use led to less antimicrobial exposure in the subgroup of patients who received antibacterials before CSF cultures were obtained.

NEXT STEPS

- Develop a system to guide appropriate MEP use.

