



Original Article

Dynamic multiplex cytokine profiling to identify risk factors for Lung Consolidation and Necrotizing Transformation in Children with *Mycoplasma Pneumoniae* Pneumonia

Supplementary files.

Supplementary Table S1. Sampling attrition and baseline comparability at follow-up time points.

A. Baseline comparability: scanned vs unscanned (absolute SMDs)

Baseline variable	Abs. SMD (Scanned vs Unscanned)
Age (years)	0.10
Male sex	0.06
Pre-T0 systemic steroids	0.19
Viral co-infection	0.12
T0 IL-6 (log ₂)	0.31
T0 CXCL10/IP-10 (log ₂)	0.28
T0 IL-10 (log ₂)	0.12

B. Primary reasons for missed samples, by time point

Reason (primary)	T1 missing (n=56) n (%)	T2 missing (n=120) n (%)	T3 missing (n=172) n (%)
Missed window / early discharge	24 (42.9%)	31 (25.8%)	116 (67.4%)
Outpatient no-show (post-discharge)	0 (0%)	49 (40.8%)	0 (5%)
Insufficient specimen volume	13 (23.2%)	11 (9.2%)	16 (9.3%)
Assay / processing failure	6 (10.7%)	5 (4.2%)	6 (3.5%)
Transfer to other facility / higher-level care	5 (8.9%)	12 (10.0%)	12 (7.0%)
Clinician deferral	8 (14.3%)	12 (10.0%)	22 (12.8%)

C. Baseline balance (observed vs. missing) summarized by absolute SMD

Variable (baseline)	T1 SMD (obs = 212, miss = 56)	T2 SMD (obs = 148, miss = 120)	T3 SMD (obs = 96, miss = 172)
Age (years)	0.07	0.10	0.12
Male sex	0.08	0.01	0.00
Pre-T0 systemic steroids	0.12	0.12	0.09
Viral co-infection	0.08	0.08	0.03
T0 IL-6 (log ₂)	0.10	0.23	0.24
T0 CXCL10/IP-10 (log ₂)	0.12	0.21	0.22
T0 IL-10 (log ₂)	0.06	0.18	0.16

Supplementary Table S2. Sensitivity analyses for multivariable models.

A. Admission model: CXR-defined consolidation ≤14 days					
Specification	Mutually adjusted OR (95% CI): IL-6	CXCL10/IP-10	IL-10	AUC (apparent/corrected)	Calibration slope
Primary (cytokine-only)	1.45 (1.16–1.83); q=0.010	1.52 (1.21–1.93); q<0.010	1.28 (1.03–1.60); q=0.040	0.78 / 0.76	0.97
+ Clinical covariates	1.42 (1.13–1.79); q=0.012	1.49 (1.18–1.89); q<0.010	1.27 (1.02–1.58); q=0.045	0.79 / 0.77	0.97
Excluding pre-T0 steroids	1.43 (1.14–1.81); q=0.011	1.50 (1.19–1.90); q<0.010	1.27 (1.02–1.59); q=0.043	0.78 / 0.76	0.98
Removing viral coinfections	1.44 (1.14–1.83); q=0.012	1.51 (1.19–1.92); q<0.010	1.27 (1.01–1.59); q=0.049	0.78 / 0.76	0.97
Adjusting for macrolide resistance	1.40 (1.06–1.85); q=0.018	1.48 (1.13–1.94); q=0.012	1.25 (0.98–1.60); q=0.059	0.77 / 0.75	0.96
B. Day-3 landmark model: Post-T1 consolidation					
Specification	Mutually adjusted OR (95% CI): IL-6	CXCL10/IP-10	IL-10	AUC (apparent/corrected)	Calibration slope
Primary (cytokine-only)	1.40 (1.12–1.76); q=0.004	1.48 (1.18–1.88); q=0.002		0.84 / 0.82	1.02
+ Clinical covariates	1.38 (1.10–1.74); q=0.005	1.45 (1.16–1.85); q=0.003		0.84 / 0.82	1.02
+ Steroid initiation/intensification T0-T1 (covariate)	1.36 (1.09–1.71); q=0.006	1.46 (1.16–1.86); q=0.003		0.83 / 0.81	1.01
IPTW for steroid initiation/intensification	1.38 (1.10–1.73); q=0.005	1.47 (1.16–1.86); q=0.003		0.83 / 0.81	1.01
Excluding children with steroid change T0→T1 (Restriction; n=162 of 180 event-free T1)	1.39 (1.11–1.75); q=0.004	1.47 (1.17–1.87); q=0.002		0.84 / 0.82	1.02
C. NP exploratory models — CT-defined necrotizing pneumonia					
Specification	Mutually adjusted OR (95% CI): IL-6 (T0)	ΔIL-6 (T0-T1)	AUC (apparent / corrected)	Calibration slope	
Primary (Firth; cytokine-only)	1.67 (1.09–2.58); q=0.020	1.89 (1.22–3.00); q=0.011	0.79 / 0.77	1.00	
+ Clinical covariates (Firth)	1.59 (1.03–2.53); q=0.028	1.81 (1.15–2.90); q=0.014	0.78 / 0.76	1.00	
IPSW for being scanned (weighted logistic)	1.62 (1.06–2.50); q=0.025	1.85 (1.18–2.96); q=0.013	0.78 / —	0.99	
Removing viral coinfections (Firth)	1.66 (1.06–2.61); q=0.024	1.88 (1.20–2.99); q=0.012	0.79 / 0.77	1.01	

Supplementary Table S3. Practical risk-stratification at admission (T0) and day 3–5 (T1).

T0 Admission model (full cohort; N = 268; consolidation events = 96)		
Predicted-risk bin	N in bin	Observed consolidation, n/N (%)
<10%	70	7 / 70 (10.0%)
10–<20%	80	18 / 80 (22.5%)
20–<30%	60	20 / 60 (33.3%)
≥30%	58	51 / 58 (87.9%)
Total	268	96 / 268 (35.8%)

Day-3 landmark model (event-free at T1; N = 180; post-T1 events = 54)		
Predicted-risk bin	N in bin	Observed consolidation, n/N (%)
<10%	60	4 / 60 (6.7%)
10–<20%	50	8 / 50 (16.0%)
20–<30%	30	10 / 30 (33.3%)
≥30%	40	32 / 40 (80.0%)
Total	180	54 / 180 (30.0%)