1146. *Lactococcus* species Catheter-Related Bloodstream Infections in Pediatrics: A Case Series

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Session: P-64. Pediatric Bacterial Studies (natural history and therapeutic)

Background. Central venous catheters (CVC), may lead to central line-associated blood stream infections (CLABSIs). In the past, *Lactococcus* species have seldom been considered pathogenic. However, clinically significant infections have been reported, of which few are pediatric cases, all outside the United States.

Methods. We retrospectively identified pediatric patients with bacteremia secondary to *Lactococcus* spp. admitted to a tertiary pediatric hospital from January 2018 - December 2020. We reviewed the PubMed database for cases of pediatric *Lactococcus* spp. infections in English, peer-reviewed literature.

Results. We identified 3 patients with *Lactococcus spp.* bacteremia. The average patient was 17 months old (range, 6–24 months). All had a CVC; two had short bowel syndrome and 1 had nephrotic syndrome. None received probiotics. Empiric treatment for all included vancomycin. Two of 3 patients were de-escalated to ceftriaxone. All isolates were susceptible to penicillin. Duration of treatment was 10-14 days. Two of 3 were managed with CVC retention and none had recurrence of infection.

A literature review revealed 9 additional cases (Table 1). The most common source of infection was blood (33%), with 66% (2/3) occurring in patients with central lines. Other sources included liver abscess (11%), brain abscess (11%), cerebrospinal fluid (11%), urine (11%), and endocarditis (22%). Median patient age was 12 months (range, 14 days-14 years). Five of 9 patients had an underlying risk factor. Duration of therapy ranged from 7-40 days. Most definitive treatment regimens consisted of a third-generation cephalosporin (44%). Of bacteremia, 2/3 received vancomycin as part of their definitive therapy. Five of 9 reported quantitative antimicrobial sensitivity testing (AST) or interpretation of AST to beta-lactam antibiotics; 80% (4/5) were susceptible.

Conclusion. To the best of our knowledge, these are the first reported pediatric cases of *Lactococcus* infections in the United States and suggests *Lactococcus spp.* should be considered pathogenic in the appropriate circumstances. This series adds to the limited literature, including AST. Continued accrual of susceptibility data may raise the possibility of using a 3rd generation cephalosporin as empiric therapy for Lactococcus bacteremia.

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1147. Sentinel Surveillance of Bacterial Pneumonia in Children Under 5 years Treated in HOMI - Fundación Hospital pediatrico la Misericordia in Bogotá, Colombia 2016-2020.

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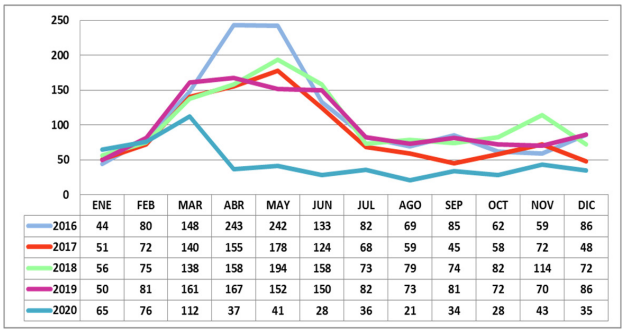
Session: P-64. Pediatric Bacterial Studies (natural history and therapeutic)

Background. Pneumonia is one of the leading causes of hospitalization and death in children under 5y. The main causes of bacterial pneumonia (BP) are *Streptococcus pneumoniae* (Spn) and *Haemophilus influenzae* (Hi). Colombia implemented the Hib vaccine in 1997 with a 3 + 0 scheme and the PCV10 vaccine in 2012, using a 2 + 1 scheme. Sentinel surveillance of BP is carried out at HOMI - Fundación Hospital Pediátrico La Misericordia, which is part of the invasive bacterial vaccine preventable disease surveillance network.

Methods. A daily active search for cases that met the definitions established in the protocol of the Pan American Health Organization was carried out. All hospitalized patients under 5 years of age with a diagnosis of community acquired pneumonia (ICD10 J10 to J22) were classified as suspected cases, while all suspected cases in which chest X-ray showed a radiological pattern compatible with bacterial pneumonia were considered a probable case. Blood cultures were taken from probable cases; if results were positive (Spn, Hi), the samples were sent to the district and national reference laboratories for confirmation and serotyping. The data obtained in the period January 2016 to December 2020 were analyzed.

Results. 5272 suspected cases of bacterial pneumonia were found, of which 60% were < 2 y. The highest incidence occurred from March to June (Figure 1). Blood cultures were performed in 2223 (92%) of the 2432 (46.1%) probable cases, confirming 127 (5.2%) cases. Spn, Hi, and other bacteria were found in 55, 27, and 28 cases, respectively (Table 1). Serotyping was performed in 85.4% of the Spn isolates and 77.7% of Hi isolates. The most frequent Spn serotypes were Spn19A in 19 cases (40.4%), Spn3 in 12 cases (25.5%), and Spn14 in 4 cases (8.5%). The presence of Spn19A has increased over time (Figure 2). The most frequent Hi was non-typeable in 13 patients (61.9%), followed by serotype b 6 (28.5%) and serotype a 2 (9.5%). The rate of hospitalization for BP was 9/1000 children < 5 years, and 43 patients died. Case fatality rate was 1.7% among probable cases.

Graph 1. Trend of suspected bacterial pneumonia cases in children under 5 years old. HOMI. 2016-2020

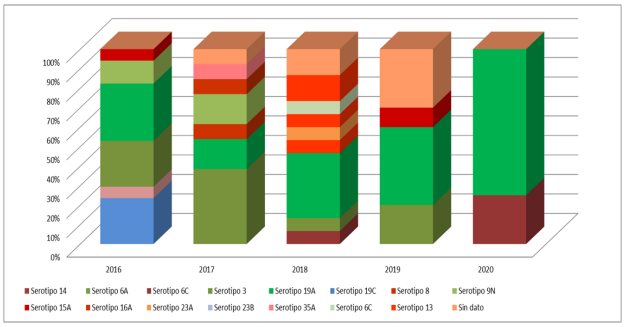


	ENE	FEB	MAR	ABR	MAY	JUN	JUL	AGO	SEP	OCT	NOV	DIC
2016	44	80	148	243	242	133	82	69	85	62	59	86
2017	51	72	140	155	178	124	68	59	45	58	72	48
2018	56	75	138	158	194	158	73	79	74	82	114	72
2019	50	81	161	167	152	150	82	73	81	72	70	86
2020	65	76	112	37	41	28	36	21	34	28	43	35

Table 1. Bacterial pneumonia isolates. HOMI. 2016 - 2020

Bacteria	2016		2017		2018		2019		2020	
	n	%	n	%	n	%	n	%	n	%
Streptococcus pneumoniae	17	2.7	13	2.3	12	3.57	9	2.4	4	3.4
Haemophilus influenzae	8	1.2	2	0.36	11	3.3	6	1.5	0	0
Neisseria meningitidis	1	0.16	0	0	0	0	0	0	0	0
Staphylococcus aureus	4	0.64	5	0.9	2	0.6	3	1	1	0.9
Salmonella	0	0	3	0.54	0	0	0	0	0	0
Klebsiella pneumoniae	0	0	1	0.18	0	0	2	1	0	0
Klebsiella oxytoca	0	0	1	0.18	1	0.3	0	0	0	0
Otros	11	1.7	1	0.18	1	0.3	1	0.4	1	0.9
Contaminados	56	9.04	48	8.64	40	11.9	44	10.6	15	12.8
Negativos	522	84.32	481	86.7	273	81.3	348	84	96	82.1
Total	619	100	555	100	336	100	414	100	117	100

Graph 2. Bacterial pneumonia serotypes. HOMI. January 2016 - December 2020



Conclusion. BP mainly occurs in 2-year-old children. Spn 19A is the most common bacteria. Although the most frequent Hi is non-typeable, cases of Hib are still observed. Sentinel surveillance allows measuring the impact of public health interventions on this disease.

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1148. Duration of Antibiotic Therapy in the Treatment of Bacterial Meningitis in Young Infants: A Systematic Review and Narrative Synthesis

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Session: P-64. Pediatric Bacterial Studies (natural history and therapeutic)

Background. IDSA recommendations of 14-21 days of parenteral therapy for bacterial meningitis are based predominantly on expert consensus. Parenteral durations consistent with these recommendations are sometimes provided even when meningitis is suspected but not confirmed. We aimed to systematically review the literature on duration of parenteral antibiotic therapy and outcomes in bacterial meningitis in infants < 3 months of age.

Methods. We searched PubMed, Embase, and the Cochrane Central Register of Controlled Trials for publications up until May 11, 2021. Eligible studies were published in English and included infants < 3 months of age with bacterial meningitis for which route and duration of antibiotic therapy and outcomes were reported. We excluded case reports and infants with birth weight < 1500g, major congenital malformations, or

neurosurgical conditions. We assessed bias using published tools specific to study type. A meta-analysis was not conducted due to insufficient data on outcomes by duration of therapy. PROSPERO registration: CRD42020201667.

Results. A total of 2195 studies were identified; 280 were selected for full text review and 32 were included for narrative synthesis. There was 1 randomized-controlled trial (RCT), 25 cohort studies, and 6 case series. The RCT found no difference in treatment failure rates between 10 and 14 days of therapy, but only included 2 cerebrospinal fluid (CSF) culture-positive cases. A single cohort study including only CSF culture-negative cases presented outcomes by duration of therapy and concluded that courses >21 days had no impact on prognosis. Twenty-one studies had data on duration of therapy and outcomes by patient, most with small samples (median 4 patients). No conclusions on efficacy of shortened antibiotic courses could be drawn due to small sample sizes and lack of stratification of outcomes by short versus long courses.

Conclusion. Data on parenteral treatment duration in bacterial meningitis in infants < 3 months are primarily observational, and larger studies rarely report outcomes by duration of therapy. Given the associated risks and costs of prolonged parenteral therapy, there is a pressing need for comparative effectiveness research to determine the optimal parenteral treatment duration.

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1149. Application of a Multiplex Polymerase Chain Reaction Test for Diagnosing Bacterial Enteritis in Children in a Real-Life Clinical Setting

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Session: P-64. Pediatric Bacterial Studies (natural history and therapeutic)

Background. Although a bacterial multiplex polymerase chain reaction (mPCR) test should be performed selectively in patients with gastrointestinal symptoms consistent with bacterial enteritis, its usefulness has been evaluated upon stool samples as requested by clinicians, without considering the patients' gastrointestinal symptoms or clinical diagnoses. This study aimed to determine the subjects to bacterial mPCR testing and to interpret the mPCR test results with considering patients' clinical symptoms and diagnoses.

Methods. Medical records of 710 pediatric patients for whom a bacterial mPCR test was performed were retrospectively reviewed. Clinical characteristics and mPCR test results were compared between patients with positive mPCR test results (n = 199) and those with negative mPCR test results (n = 511) and between patients in whom inflammatory pathogens (*Campylobacter* spp. and *Salmonella* spp.) were identified (n = 95) and those in whom toxigenic pathogens (*Clostridium* spp.) were identified (n = 70).

Results. A positive mPCR test result was significantly associated with an older age (p < 0.001), diagnosis of acute gastroenteritis (p = 0.021), presence of hematochezia (p < 0.001), and absence of cough (p = 0.004). The diagnosis of acute gastroenteritis (p = 0.003), presence of fever (p = 0.027) and diarrhea (p = 0.043), and a higher C-reactive protein level (p = 0.025) were significantly associated with the identification of inflammatory pathogens rather than toxigenic pathogens in patients with positive mPCR test results.

Conclusion. Bacterial mPCR testing should be performed selectively based on patients' clinical symptoms and diagnoses, and its results should be interpreted with considering identified pathogens.

Disclosures. **All Authors**: No reported disclosures

1150. Pediatric Osteoarticular Infections Caused by Mycobacteria Tuberculosis Complex: A Twenty-Six Year Review of Cases in San Diego, California

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Session: P-64. Pediatric Bacterial Studies (natural history and therapeutic)

Background. Osteoarticular infections (OAI) account for 10-20% of extrapulmonary *Mycobacteria tuberculosis* (MTB) complex infections in children. Given the rarity of MTB OAI, the epidemiology, disease manifestations, and treatment are poorly characterized. We describe 21 children treated for MTB complex OAI over a 26-year period at a tertiary pediatric center in southern California.

Methods. We conducted a retrospective review of children diagnosed with MTB complex OAI and cared for between 31 Dec 1992 to 31 Dec 2018 at a single tertiary care pediatric hospital with close proximity to the United States-Mexico border.

Results. We identified 21 children with MTB complex OAI during the study period (Table 1). Concurrent pulmonary disease (4.8%), meningitis (9.5%), and intra-abdominal involvement (14.3%) were all observed. MTB complex was identified by culture from operative samples in 15/21 children (71.4%); 8/15 (51.3%) cultures were positive for *Mycobacterium bovis.* Of the eight cases of vertebral OAI (the most common site), one was culture-positive for *M. bovis.* Open bone biopsy was the most common procedure for procurement of a tissue sample and had the highest culture yield (Table 2). The median duration of antimicrobial therapy was 52 weeks (IQR 52-58). Successful completion of therapy was documented in 15 children (71.4%). Seven children (33.3%) experienced long term sequelae related to their infection.

Table 1. Twenty-one children with Mycobacteria tuberculosis complex osteoarticular infections.

Subject*	Age (years)	Sex	Presenting symptom (Duration)	CRP (mg/dL)	ESR (mm/hr)	OAI sites	Sites other than OAI	PPD, IGRA	**Pathology	**Culture data, Source of culture	†Resistance	‡Discharge regimen	Duration of therapy (weeks)	Complication
1	3.8	F	Elbow swelling, decreased ROM, pain (2 days)	3.7	50	Elbow	N/A	Positive, N/A	OBB, AFB+	*M. tuberculosis*/OBB, JA & OBB	None	Unknown	Unknown	Unknown
2	2.8	F	Limp, decreased ROM, pain (5 days)	2.7	54	Pelvis	N/A	Positive, N/A	None	*M. bovis*/JA	P	RIF	Unknown	Unknown
3	2.3	M	Knee swelling, limp, decreased ROM, fever (3 months)	1	39	Femur	N/A	N/A, N/A	OBB, AFB+	*M. bovis*/OBB	P	RIF	52	None
4	7.4	F	Limp (4 weeks)	<0.4	19	Pelvis	N/A	Positive, N/A	OBB, AFB+	*M. bovis*/JA & OBB	P	RIF	68	None
5	2.9	M	Limp, erythema (4 months)	1.5	42	Femur	N/A	Positive, N/A	OBB, AFB+	*M. bovis*/OBB	P	RIF	60	None
6	1.9	M	Pain, limp (2 weeks)	0.75	60	Vertebra	N/A	Anergic, N/A	CT BB, reactive changes	No organism isolated	N/A	RIF	36	None
7	18.7	F	Pain, fatigue (unknown)	0.5	76	Vertebra	N/A	Negative, N/A	OBB, pus	*M. tuberculosis*/OBB	S	RIF	52	None
8	9.8	M	Scoliosis (unknown)	1.1	42	Vertebra	N/A	Positive, N/A	I&D, lymphocytic and neutrophilic infiltration	No organism isolated	N/A	RIE	60	None
9	14.5	F	Pain, weakness, paraplegia, weight loss, malaise (4 months)	Not available	Not available	Vertebra	N/A	Positive, N/A	OBB, AFB+	*M. tuberculosis*/OBB	None	RIPS	52	None
10	18.5	M	Abdominal pain, chest pain, weight loss, fatigue (1 month)	Not available	42	Vertebra	Liver, spleen, left lobun	Positive, N/A	CT BB, AFB+	No organism isolated	N/A	RIPE	Unknown	Unknown
11	12.2	M	Fever, cough, anorexia (3 weeks)	4.4	Not available	Vertebra	N/A	Negative, Negative	CT BB, granulomas	*M. bovis*/CTBB	P	RIPS	52	Scoliosis
12	1.0	F	Somnolence, emesis (5 weeks)	4	Not available	Sacrum, osseys	Meningitis	Negative, N/A	OBB, AFB+	*M. tuberculosis*/OBB	None	RIPE	Unknown	Seizures
13	3.4	M	Abdominal mass, anorexia (5 days)	Not available	59	Vertebra	Intestine	N/A, N/A	I&D, AFB+	*M. tuberculosis*/epidural abscess	I	RIPE	60	††See below
14	3.7	F	Limp, fever (2 weeks)	Not available	44	Hip, femur	N/A	Positive, N/A	OBB, AFB+	*M. bovis*/OBB	None	RIF	44	None
15	1.6	F	Knee swelling, limp (4 weeks)	Not available	53	Knee	N/A	Positive, N/A	BA, AFB+ SB, AFB+	No organism isolated	N/A	RIF	30	None
16	6.3	M	Limp, back swelling and pain (4 months)	Not available	96	Vertebra	N/A	Positive, N/A	I&D, AFB+	*M. tuberculosis*/epidural abscess	None	RIPS	52	Scoliosis
17	13.6	M	Pain, limp (6 months)	Not available	Not available	Hip	N/A	Positive, N/A	SB, AFB+	No organism isolated	N/A	RIF	52	Decreased ROM
18	10.6	F	Elbow swelling, pain, erythema (3 months)	Not available	35	Elbow	N/A	Positive, N/A	OBB, sustaining necrosis SB, AFB+	*M. bovis*/OBB	I	RI	Unknown	Decreased ROM
19	4.2	F	Pain, limp (6 months)	Not available	18	Hip	N/A	Positive, N/A	SB, granulomas	No organism isolated	N/A	RIF	Unknown	Decreased ROM
20	7.1	M	Cervical neck pain, fever, weight loss (unknown duration)	5.03	112	Pelvis, skull base	Spleen, lymph nodes	N/A, N/A	Lymph node, biopsy, AFB+	*M. bovis*/lymph node	P	RIPE	52	None
21	5.4	F	Pain, decreased ROM (12 months)	7.3	67	Hip, femur	Meningitis	Negative, Positive	BA AFB+ SB, AFB+	MTB complex/SB & BA	None	RIPS	Unknown	Limb length discrepancy
Summary	median 5.4 (IQR 2.8, 10.6)	48% male		median 2.1 (IQR 0.9-3.8)	median 50.0 (IQR 42-60)								median 52 (IQR 52-58)	

*Subjects are listed in random order.
** For Pathology and Culture data:
I&D= incision and drainage, JA= joint aspirate, SB= synovial biopsy, BA= bone aspirate, CT BB= CT guided bone biopsy, OBB= open bone biopsy
†R= For R and Discharge Treatment:
R= Rifampin, I= Isoniazid, P= Pyrazinamide, E= Ethambutol, S= Streptomycin
††Repeat admission one month after initial admission for CT guided abscess drainage

Table 2. Surgical sample type and percent positivity.

Sample Type	Culture positive (%)
Incision and drainage of abscess	4/6 (66.7)
Pelvis	1/1 (100)
Retroauricular	0/1(0)
Sacrum	1/1 (100)
Psoas	2/2 (100)
Forearm	0/1 (0)
Joint aspirate	3/5 (60)
Elbow	1/1 (100)
Hip	2/3 (66.7)
Knee	0/1 (0)
Synovial Biopsy	2/6 (33.3)
Knee	0/1 (0)
Hip	2/4 (50)
Elbow	0/1 (0)
Bone aspirate	1/2 (50)
Femur	1/2 (50)
Bone biopsy (CT-guided)	1/3 (33.3)
Vertebra	1/3 (33.3)
Bone biopsy (open)	8/8 (100)
Olecranon	2/2 (100)
Femur	1/1 (100)
Hip	2/2 (100)
Vertebra	2/2 (100)
Sacrum	1/1 (100)
Total	19/30 (63.3)

Conclusion. Among the 21 children with MTB complex OAI assessed, 8 of 15 (53.3%) children with a positive tissue culture had *M. bovis* (intrinsically resistant to