Table 2: Comorbidities and Charlson Comorbidity Index score of patients with brain abscess and cerebritis at Mayo Clinic, 2009-2019.

Variables	No of cases	Percentage, %	Median (SD)	Relative Risk (95% CI)	P-value
Comorbidities					
Acquired immunodeficiency syndrome	122	18.31		Reference	
Cancer	190	28.52		1.41 (1.15-1.72)	0.0008ᵃ
Cerebrovascular accidents	387	58.10		3.17 (2.66-3.77)	<0.0001ᵃ
Chronic obstructive pulmonary disease	278	41.74		2.27 (1.89-2.73)	<0.0001ᵃ
Congestive heart failure	249	37.38		2.04 (1.69-2.46)	<0.0001ᵃ
Diabetes mellitus	299	44.89		2.45 (2.04-2.93)	<0.0001ᵃ
Hypertension	305	45.79		2.50 (2.08-2.99)	<0.0001ᵃ
Liver disease	205	30.78		1.68 (1.38-2.04)	<0.0001ᵃ
Peripheral vascular disease	307	46.09		2.51 (2.10-3.01)	<0.0001ᵃ
Renal disease	290	43.54		2.37 (1.98-2.85)	<0.0001ᵃ
Charlson Comorbidity Index Score					
1-4	163	24.47		Reference	
5-9	260	39.03		1.59 (1.35-1.87)	<0.0001ᵘ
10-14	109	16.36	10.90 (9.52)	0.66 (0.53-0.83)	0.0003ᵘ
15-19	15	2.25		0.90 (0.05-0.15)	<0.0001ᵘ
21-29	50	7.50		0.30 (0.22-0.41)	<0.0001ᵘ
30-33	69	10.36		0.41 (0.32-0.54)	<0.0001ᵘ

Abbreviations: CI, confidence interval; No, number; SD, standard deviation; α, Chi-Square Test; μ, Anova.

Conclusion: Male, White Non-Hispanics, and elderly patients seem to be the most prevalent patient population at risk for brain abscess or cerebritis. This investigation provides clinicians the demographic data needed to identify potentially complex patients with brain abscesses.

Disclosures: **M. Rizwan Sohail, MD**, **Aziyo Biologics** (Consultant)**Medtronic Inc** (Consultant, Research Grant or Support)

345. Early Oral Therapy for *Streptococcus anginosus* Purulent Brain Infections: A Single Center Experience

Daniel S. Dodson, MD, MS[1]; Heather R. Heizer, Physician Assistant[1]; James Gaensbauer, MD[2]; [1]Children's Hospital Colorado, Aurora, CO; [2]Children's Hospital Colorado and Denver Health, Denver, Colorado

Session: P-11. CNS Infection

Background: Pediatric *Streptococcus anginosus* intracranial pyogenic are commonly treated with prolonged intravenous (IV) antibiotics, exposing patients to risks of a long-term central catheter. Antibiotics with high oral bioavailability, such as levofloxacin, may allow early oral transition.

Methods: To characterize patients with *S. anginosus* intracranial infections transitioned to oral therapy, we performed a retrospective review at Children's Hospital Colorado from 1/2004 to 2/2019. Inclusion criteria were radiologic evidence of an infected parenchymal, subdural, or epidural fluid collection AND a positive culture for *S. anginosus* from an intracranial source, specific extracranial sources (sinus, scalp, orbit), or blood. The primary endpoint was oral antibiotic failure defined as worsening infection on oral therapy. Comparisons were done using Fisher's exact test.

Results: 94 patients met inclusion criteria, 57 of whom were transitioned to oral therapy during treatment. Oral levofloxacin was used in 54 of the 57. 12% of oral transitions occurred in the first 14 days of therapy (range 3–8 days), and 35% in the first 28 days. Patients transitioned in the first 28 days were more likely to have an epidural collection (p:< 0.01), and less likely to have a subdural collection (p: 0.03) or brain abscess (p:< 0.01). Of the 57, none had oral antibiotic failure. Contributing reasons for oral transition included central line complications (18%), IV medication reaction (18%), hematologic abnormality presumed secondary to IV antibiotics (33%), and provider judgement (56%). Two patients required re-introduction of IV therapy for reasons other than clinical failure (one for medication non-adherence and one for adverse reaction to levofloxacin).

Table 1: Characteristics of patients transitioned to oral therapy (n= 57)

Race (percent)		Co-Pathogens Present	
Asian	4%	Methicillin sensitive *Staphylococcus aureus*	16%
Black or African American	7%	Methicillin resistant *Staphylococcus aureus*	0%
White	74%	Coagulase negative Staphylococci	25%
Other	12%	Other Streptococcus species	11%
Unknown	4%	Gram negative aerobic bacteria	14%
Ethnicity (percent)		Anaerobic bacteria	14%
Hispanic	18%	Candida species	4%
non-Hispanic	77%	Number of Source Control Procedures	
Other	2%	Zero	32%
Unknown	4%	One	51%
Age (average years)	11.1	Two	14%
Sex (percent female)	35%	Three	4%
Intracranial Diagnosis		Laboratory Data	
Brain Abscess	30%	Average highest C-reactive protein (mg/dl)	14.7
Subdural Abscess/Empyema	40%	Average C-reactive protein before oral transition (mg/dl)	0.9
Epidural Abscess/Empyema	60%	Average highest Erythrocyte sedimentation rate	66
Presumed Source of Infection		Average erythrocyte sedimentation rate before oral transition	18
Sinogenic	72%	Contributing reasons for oral transition	
Otogenic	7%	Complication with central catheter	18%
Trauma	4%	Medication reaction/allergy	18%
Hematogenous/unknown	18%	Hematologic abnormalities	33%
Co-Diagnoses		Provider Judgement	56%
Orbital Abscess	16%	Length of IV therapy (average days)	37
Osteomyelitis	25%	Length of total therapy (average days)	84
Sinus Thrombosis	16%		

Figure 1: Outcomes of oral transition versus timing of oral transition.

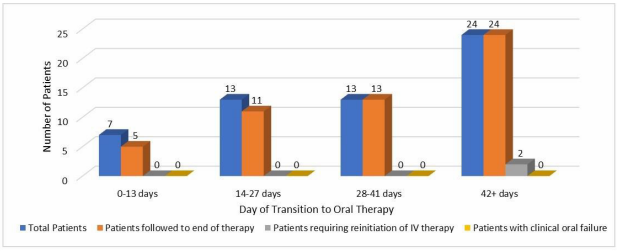
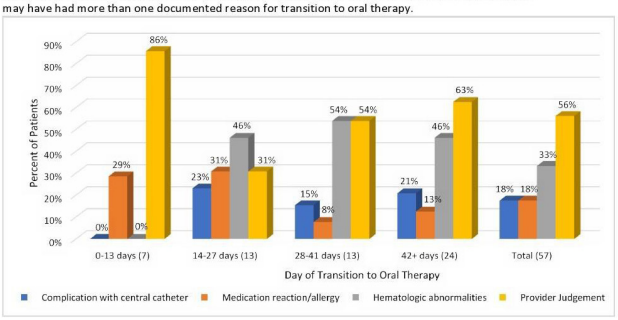


Figure 2: Reason for transition to oral therapy verus timing of oral transition. Note that single patients may have had more than one documented reason for transition to oral therapy.



Conclusion: We observed success and tolerance of levofloxacin-based oral therapy for pediatric pyogenic intracranial *S. anginosus* brain infections and confirmed the frequent occurrence of adverse events associated with IV treatment. Transition to oral therapy should be considered, particularly if complications of IV therapy arise in treatment of an epidural infection. A subset of patients in our study transitioned within the first 14 days of therapy; prospective studies are needed to characterize the safety of such very early transition.

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346. Eastern Equine Encephalitis and Use of Intravenous Immunoglobulin Therapy and High-Dose Steroids

Sarah I. Collens, n/a[1]; Douglas R. Wilcox, MD, PhD[2]; Shibani Mukerji, MD, PhD[1]; Farrah J. Mateen, MD, PhD[3]; Isaac H. Solomon, MD, PhD[4]; [1]Massachusetts General Hospital, Boston, Massachusetts; [2]Massachusetts General Hospital, Brigham and Women's Hospital, Harvard Medical School, Boston, Massachusetts; [3]Massachusetts General Hospital, Harvard Medical School, Boston, Massachusetts; [4]Brigham and Women's Hospital, Boston, Massachusetts

Session: P-11. CNS Infection

Background: Eastern equine encephalitis (EEE) is a mosquito-borne viral infection with significant neurological morbidity and mortality. The clinical presentation and patient outcomes after treatment with IVIG, high-dose steroids, or standard of care alone in EEE remains unclear.

Methods: A retrospective observational study of patients admitted to two tertiary academic medical centers in Boston, Massachusetts with EEE from 2005 to 2019.

Results: Of 17 patients (mean [SD] age, 50 [26] years; 10 (59%) male, and 16 (94%) White race), 17 patients had fever (100%), 15 had encephalopathy (88%), and 12 had headache (71%). Eleven of 14 patients with cerebrospinal fluid (CSF) cell count differential had a neutrophil predominance (mean [SD], 60.6% of white blood cells [22.8]) with an elevated protein level (mean [SD], 112 mg/dL [48.8]). Affected neuroanatomical regions included the basal ganglia (n=9/17), thalamus (n=7/17), and mesial temporal lobe (n=7/17). A total of 11 patients (65%) received IVIG; 8 (47%) received steroids. Of the patients who received IVIG, increased time from hospital admission to IVIG administration correlated with worse long-term disability as assessed by modified Rankin Score (mRS) (r=0.72, p=0.02); steroid use was not associated with mRS score. The mortality was 12%.

Figure 1. Imaging Characteristics: Typical Pattern of MRI Involvement and Affected Neuroanatomical Regions in Patients with Eastern Equine Encephalitis. All images displayed are the T2-FLAIR sequence. (A) Representative images of pattern of typical neuroanatomical region involved in one patient with demonstrated involvement of the temporal lobe and pons, temporal lobe and midbrain, and basal gangial by T2-FLAIR hyperintensity (panels left to right). (B) Representative images of patients with mild (mRS 0–2), moderate (mRS 3–4), and severe (mRS 5–6) disability score at discharge. (C) Representative images of one patient over course of hospitalization at days 1, 4, and 10 after admission. (D) Quantification of neuroanatomical region involvement in initial MRI of patients with EEE as determined by T2-FLAIR hyperintensity. An area was scored as abnormal only once per patient.