Unleashing the Potential of Telemedicine in Epilepsy: Effectiveness and Patient Preferences

Rani Priyanka Vasireddy[1], Ana Roman[1] ,Christopher J McLouth[2], Sally Mathias[2], Lara Jehi[3], Ruta Yardi[1]
1. University of Kentucky, Neurology Institute, Lexington, Kentucky, 2. University of Kentucky, Biostatistics, Lexington, Kentucky
3. Cleveland clinic, Cleveland, Ohio

University of Kentucky

College of Medicine
Department of Neurology

BACKGROUND

- Epilepsy is a chronic neurologic disorder affecting approximately 6.38 individuals per 1000 and often requires lifelong care with frequent specialist visits.
- The COVID-19 public health emergency has led to the expansion of telemedicine as an alternative for ambulatory visits, benefiting patients with cognitive impairments and driving restrictions by easing access to care. However, our knowledge of the application and benefits of telemedicine is limited, as there is limited to no literature to compare benefits of in-person versus tele medicine visits.
- ***The goal of this study was to conduct an analysis of the differences in clinical and seizure-related outcomes between telemedicine and in-person visits and attempt to identify characteristics of patients who prefer telemedicine.***

METHODS

- A retrospective chart review was performed with approval from the Institutional review board. We collected social, demographic, and clinical characteristics of all adult patients with epilepsy seen either as an in-person or telehealth encounter at University of Kentucky between 1st July 2021 and 30th September 2022. During the study period, all patients were offered the option of a video visit, or a face-to-face clinic visit and had the freedom to choose their visit type.

RESULTS

- 590 independent encounters from 370 unique patients were included.
- 244 (38%) visits were in-person appointments and 366 (62%) had virtual visits.

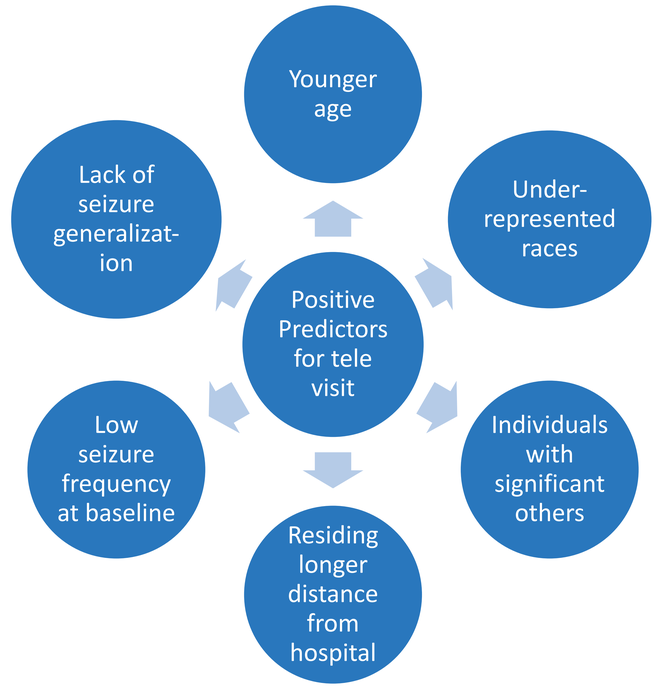
A Pearson chi square test → no difference in post-visit seizure freedom, post-visit ER admissions, anti-seizure medication changes, and ability to discuss epilepsy surgery between telemedicine and in-person visits.

- In-person visits→ more likely to report abnormalities on neurologic exam (p<0.0015)(Table1).

Variable	N	Statistics	In-person (n=244)	Televisit (n=366)	p-value
Gender	590				
Female		359	126 (56.2)	233 (63.6)	0.0741
Male		231	98 (43.7)	133 (36.3)	
Race	590				0.0043
Caucasian		522	205 (91.5)	317(86.6)	
Other minority		68	19(8.4)	49 (13.3)	
Marital status	590				<0.0001
Divorced/Separated/ Single		400	173(77.23)	227 (62.2)	
Married/Significant other		190	51 (22.7)	139 (37.9)	
Diagnosis	585				
Focal		362	140(63.3)	222(60.9)	0.4123
Generalized		160	61(27.6)	99(27.2)	
PNES		39	10 (4.5)	29(7.9)	
Unclassified		24			
Refractory	585				
Yes		221	89(40.2)	132(36.2)	0.3331
No		364	132(59.7)	232(63.7)	
History of GTC	585				0.0378
Yes		399	162(73.3)	237(65.11)	
No		186	59(26.70)	127 (34.9)	
Continuous Variables			In person [IQR]	Telehealth [IQR]	P value
Age	590		35 (25-53.7)	31(24-46.2)	0.0232
Distance traveled to appointment	572		38.6 (7.5-97.3)	43.4(11.7-123.4)	0.0320
Mean annual income	567		68960 [60776 - 82649]	67283 [54126-80877.2]	0.7478
Seizure frequency reported per month	585		0.4(0.1-1.1)	0.3(0.1-1)	0.0565

Table 1: Data with analysis of in person and tele visits

To determine predictors of patient preference for telemedicine visits, a forward stepwise regression analysis was also conducted, and variables are analyzed using Akaike Information Criterion (AIC).



CONCLUSIONS

- **Telemedicine is a comparable alternative to in-person visits and can be used in conjunction with traditional approaches for patients with epilepsy.**
- **It can be successfully offered to younger patients, individuals residing far from the hospital, minority populations, patients with significant others, and those with less severe epilepsy, thereby reducing the access gap.**

Disclosures: Dr. Vasireddy, Dr. Roman, Dr. Mclouth, Dr. Mathias, Dr. Jehi, Dr. Yardi have nothing to disclose pertaining to this study.