Methods: This observational study enrolled a convenience sample of emergency department (ED) patients evaluated for suspected stroke within 24 hours of symptom onset. LVO and stroke status were determined by local neuroradiologists blinded to the output of the experimental platform. LVO was defined as an acute occlusion of any of the following arteries: internal carotid artery (ICA), middle cerebral artery (MCA) [M1 or M2], vertebral, or basilar. Controls were neurologically normal subjects with a National Institutes of Health Stroke Scale (NIHSS) of zero (0).

Results: From May 2018 to May 2019, eight urban US stroke centers enrolled 75 subjects being evaluated for stroke. The study also enrolled 113 control subjects. Of the subjects with neurologic deficits, mean (± SD) age was 66 (± 13), 40% were female, and the median (IQR) NIHSS was 7 (4 - 13). Median (IQR) last known well time was 170 minutes (104 - 344) and 15% of subjects were transferred from outside hospitals. The platform's performance for detecting stroke and LVO is shown in Table 1. There were no severe adverse events related to the use of the platform.

Conclusion: The experimental platform identified 90% of strokes and 94% of LVOs among subjects presenting with suspected stroke and may be able to support prehospital decision making when triaging suspected stroke subjects. Additional studies are needed to validate this study's findings.

Table 1. AlphaStroke Performance for Identification of Acute Stroke and LVO

Stroke		
Actual		
Predicted	TP: 52	FP: 17
	FN: 6	TN: 113
SEN = 90%	PPV = 75%	LR+ = 6.86
SPC = 87%	NPV = 95%	LR- = 0.12
LVO		
Actual		
Predicted	TP: 16	FP: 32
	FN: 1	TN: 139
SEN = 94%	PPV = 33%	LR+ = 5.03
SPC = 81%	NPV = 99%	LR- = 0.07

Key: TP: True Positives; FP: False Positives; FN: False Negatives; TN: True Negatives; SEN: Sensitivity; SPC: Specificity; LR+: Positive Likelihood Ratio; LR-: Negative Likelihood Ratio; PPV: Positive Predictive Value; NPV: Negative Predictive Value

69 Treatment Variation of Stable Ventricular Tachycardia in the Emergency Department

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Study Objectives: Advanced cardiac life support (ACLS) guidelines allow various treatments for stable monomorphic ventricular tachycardia (VT). Research on this topic has been limited by the transient nature of this rhythm, hence most studies have small sample sizes and are difficult to reproduce. The purpose of this study is to compare the relative effectiveness and safety of initial therapies used to treat stable VT across 21 community emergency departments (EDs).

Methods: This retrospective cohort study used structured chart review of all treated adults with ED presentations for prolonged (>2 min) monomorphic VT in 21 community EDs from 01/2010 through 12/2017. We defined monomorphic VT as a regular wide complex tachycardia (WCT) with QRS >120 ms and rate >120 beats/min. Supraventricular tachycardia with aberrancy was excluded based on Brugada criteria for VT and confirmed by the cardiology consult obtained during the patient encounter. We excluded unstable patients defined as those with an abnormal level of consciousness, dyspnea at rest, severe anginal symptoms, or physician documentation of instability. We used descriptive statistics and reported results at the patient encounter level. We described the incidence of initial treatments, successful termination (defined as VT termination within 20 minutes lasting >30 min), ED cardiac arrest following the initial intervention, and death. We compare outcomes using a two-tailed chi-square test.

Results: We analyzed 359 eligible ED presentations from 339 patients. Mean age was 70.0 years and 22.3% of cases were female: 125 (34.8%) had an automated implantable cardioverter-defibrillator (AICD), 185 (51.5%) had congestive heart failure, and 122 (34.0%) were taking chronic antiarrhythmic medications. WCT was evaluated with adenosine in 40 cases (11.1%). Initial VT treatments were intravenous amiodarone (n=196, 54.6%), external direct-current cardioversion [DCC] (n=88, 24.5%), lidocaine (n=30, 8.4%), AICD shock (n=14, 3.9%), procainamide (n=3, 0.8%), and other treatments (n=28, 7.8%). We report initial treatment success in the Table. DCC was significantly more effective than amiodarone (81.8% vs 37.2%; p<0.0001). Overall, 160 presentations (45.1%) required multiple treatments prior to ED disposition. Cardiac arrest was uncommon in this study (2.7%) and could not be associated with specific interventions due to small sample size. Five patients (1.5%) suffered cardiac arrest after the initial ED intervention, four others (1.2%) suffered cardiac arrest in the ED after subsequent interventions, one of whom died in the ED prior to disposition.

Conclusion: Emergency physicians use a variety of treatments for stable monomorphic VT with differing rates of success. Amiodarone is the most common initial treatment, but it may be less effective than DCC. Because initial treatments are often ineffective, patients frequently require multiple interventions. Opportunities exist for improvements in care.

Table. The prevalence, effectiveness, and cardiac arrest rate of initial interventions in the ED for the treatment of stable monomorphic VT

Initial Intervention	Prevalence (n=359)		Effectiveness	
	n	(%)	n/N	(%)
Amiodarone	196	(54.6)	73/196	(37.2)
DCC	88	(24.5)	72/88	(81.8)
Lidocaine	30	(8.4)	18/30	(60.0)
AICD Shock	14	(3.9)	7/14	(50.0)
Procainamide	3	(0.8)	1/3	(33.3)
Other Treatments	28	(7.8)	4/28	(14.3)

70 Accuracy of Point-of-Care Ultrasound by Emergency Physicians in Diagnosis of Diastolic Cardiac Dysfunction When Compared to 2D Echocardiogram by Cardiology

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Study Objectives: This study aims to compare the diagnostic accuracy of point-of-care ultrasound (POCUS) performed in the emergency department (ED) to a comprehensive echocardiogram (ECHO) interpreted by a cardiologist.

Methods: This is a prospective, observational study on patients presenting to the ED with a diagnosis of acute decompensated heart failure. A POCUS was performed by an ultrasound fellowship trained emergency physician to evaluate for the presence of diastolic dysfunction using pulsed wave and tissue doppler measurements as well as the left ventricular (LV) systolic function. Results were compared to the ECHO interpreted by a blinded cardiologist.

Results: 20 patients were evaluated for diastolic dysfunction by POCUS. There was complete agreement between the emergency physician and cardiology interpreted ECHOs in all 20 cases. 19 cases were correctly diagnosed as positive for diastolic dysfunction, whereas 1 case was correctly diagnosed as negative for diastolic dysfunction. Calculated positive and negative predictive values were 100%. Secondary outcomes of in-hospital length of stay, adverse cardiac events, and mortality were also performed. Of 14 cases with irreversible diastolic dysfunction (pseudonormalization or restrictive filling) on EP-interpreted POCUS, 8 patients (57.1%) had negative secondary outcomes: 6 patients had adverse cardiac events and 2 patients had 30-day mortality. In contrast, none of the 5 cases with reversible diastolic dysfunction (impaired relaxation) on EP-interpreted POCUS had an adverse cardiac event and/or death.

Conclusion: This pilot study suggests that emergency physician performed POCUS for the evaluation of diastolic dysfunction has a high positive and negative predictive value. Additionally, given significant morbidity and mortality in this patient population, early recognition by EPs may be useful and should be further investigated.