DYSPHAGIA AS A PREDICTOR OF OUTCOME AND TRANSITION TO PALLIATIVE CARE AMONG MIDDLE CEREBRAL ARTERY ISCHEMIC STROKE PATIENTS

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DISCLOSURES

- None

OBJECTIVES:

- Describe the role of palliative care in stroke
- Present the results of the study "Dysphagia as a predictor of outcome and transition to palliative care among middle cerebral artery ischemic stroke patients"

ROLE OF STROKE IN PALLIATIVE CARE

Epidemiological data [1]

- 2010
  - 130,000 stroke related deaths
  - ~73% attributable to ischemic stroke, 16% ICH, 13% sequelae of stroke, 4% SAH
  - 50% of deaths in patient, 35% nursing home
  - 30% remain permanently disabled
  - Stroke is the leading cause of adult disability

ROLE OF STROKE IN PALLIATIVE CARE

What is Palliative care?

- "patient and family-centered care…optimizes quality of life by anticipating, preventing and treating suffering…address (ing) physical, intellectual, emotional, social and spiritual needs and facilitate patient autonomy, access to information and choice."
- Is for all patients with serious illness that interferes with quality of life [1]
- Primary palliative care: primary team manages palliative care problems
- Specialty palliative care: consultation for more complex problems.

ROLE OF STROKE IN PALLIATIVE CARE

- Middle Cerebral Artery territory stroke is the most common location for ischemic strokes
- Palliative care referral ranges from 6.5-73.8% (3-5)
- 10% of consults are directly related to artificial hydration or feeding (5)
- 46% of family interactions had disagreements regarding fluids and feeding (6)

Dysphagia as a predictor of outcome and transition to palliative care among middle cerebral artery ischemic stroke patients

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DYSPHAGIA AS A PREDICTOR OF OUTCOME AND TRANSITION TO PALLIATIVE LEVEL OF CARE AMONG MCA ISCHEMIC STROKE PATIENTS

Hypothesis:

- *Dysphagia in MCA stroke patients based on failure in a formal swallow evaluation or inability to be assessed for a swallow study due to poor neurological status would be a significant determinant of an early transition to a palliative level of care.*

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Practice gap:

- *No studies examining predictors of early transition to palliative level of care in MCA stroke*
- *No studies examining influence of dysphagia in palliative care decision making in MCA stroke patients.*

DYSPHAGIA AS A PREDICTOR OF OUTCOME AND TRANSITION TO PALLIATIVE LEVEL OF CARE AMONG MCA ISCHEMIC STROKE PATIENTS

Methods:

- *Retrospective analysis of Hartford Hospital Stroke Center Database*
- *Comprehensive stroke center*
- *Acute stroke with either left or right MCA distribution*
- *Admission between January 2005 to December 2010 were reviewed*

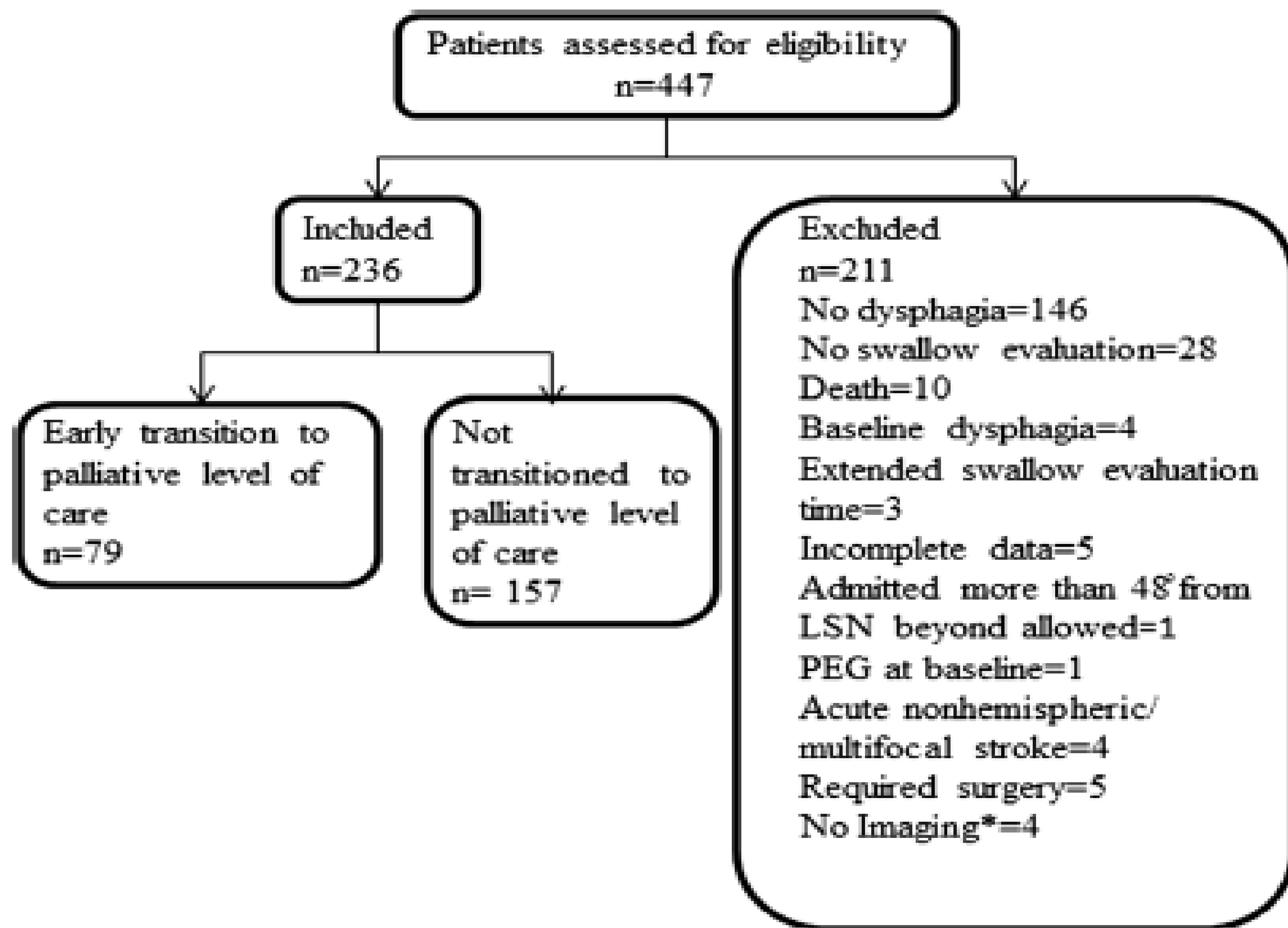

Figure 1 Subject selection. LSN = last seen normal, PEG = percutaneous endoscopic gastrostomy.

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Methods:

- *"Early transition"- patients seen by a speech therapist post stroke that were unable to undergo the swallow evaluation or failed the swallow evaluation and then transitioned to palliative care.*
- *Decision to transition: made by legally designated patient representative*
- *Team composition: neurology attending, palliative care representative, social worker, neurology resident, and nurse.*

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Methods:

- ***Data collection***: *electronic and paper medical records were reviewed to gather demographic, clinical and swallow evaluation data*
- ***Statistics***: *Descriptive statistics, comparative statistics using chi-square test of proportions, Wilcoxon Rank Sum test and t-test as appropriate.*
- ***Primary outcome***: *early transition to palliative care*
- *Multivariate logistic regression analysis to identify potential independent predictors of early transition to palliative level of care*

DYSPHAGIA AS A PREDICTOR OF OUTCOME AND TRANSITION TO PALLIATIVE LEVEL OF CARE AMONG MCA ISCHEMIC STROKE PATIENTS:

Results:

- *34% patients who transitioned to palliative care failed the first swallow evaluation or were unable to be formally assessed for dysphagia due to decreased level of consciousness.*
- *Median time from admission to transition to palliative level of care was 3 (IQR 2,5) days.*
- *48% of patients transitioned were transitioned on day 0*

Table 1 Baseline characteristics of patients transitioned to palliative level of care versus patients not transitioned to palliative level of care

Variable	All patients (n = 236)	Patients transitioned to palliative level of care (n = 79)	Not transitioned to palliative level of care (n = 157)	p-value
Age	236			**.003**
<70 n (%)	57 (24%)	10 (13%)	47 (30%)	**.003**
>70 n (%)	179 (76%)	69 (87%)	110 (70%)	
Mean (SD)	77.8 (13.58)	82.72 (10.61)	75.17 (14.22)	
Race	232			.207
White n (%)	208 (90%)	70 (89%)	138 (91%)	
Black n (%)	10 (4%)	2 (3%)	8 (5%)	
Hispanic n (%)	13 (6%)	7 (9%)	6 (4%)	
Gender	237			.802
Female n (%)	149 (63%)	49 (62%)	100 (64%)	
Male n (%)	87 (37%)	30 (38%)	57 (36%)	
AF* n (%)	110 (47%)	46 (58%)	64 (42%)	**.011**
HTN* n (%)	195 (83%)	63 (80%%)	132 (84%)	.407
Dementia n (%)	32 (14%)	12 (15%)	20 (13%)	.604
Dysphagia severity on 1st swallow evaluation				**<.001**
Mild to Moderate	94 (70%)	2 (14%)	92 (76%)	
Moderate to severe	41 (30%)	12 (86%)	29 (24%)	

*AF-atrial fibrillation, HTN-hypertension.

Table 2 Univariate analysis of possible predictors of early transition to palliative care

Variable	All patients (n = 237)	Patients transitioned to palliative level of care (n = 80)	Patients not transitioned to palliative level of care (n = 157)	p- value
Location				.001
Left MCA n (%)	129 (55%)	55 (70%)	74 (47%)	
Right MCA n (%)	107 (45%)	24 (30%)	83 (53%)	
Admit NIHSS score				<.001
				<.001
0–6 n (%)	28 (12%)	4 (5%)	24 (15%)	
7–15 n (%)	69 (30%)	14 (18%)	55 (35%)	
16 and higher n (%)	136 (58%)	58 (76%)	78 (50%)	
Median (IQR*)	17 (10,20)	19 (16, 23)	15 (8,19)	
Intraarterial tPA n (%)	44(19%)	30 (38%)	14 (9%)	<.001
Intravenous tPA n (%)	89 (38%)	30 (38%)	59 (38%)	.953
Use of Device (n = 26)	26 (11%)	7 (9%)	19 (12%)	.453
Day of Week				.001
Weekend n (%)	81 (34%)	16 (20%)	65 (41%)	
Weekday n (%))	155 (66%)	63 (80%)	92 (59%)	
Ability to be assessed on 1st swallow evaluation				<.001
Can n (%)	135 (57%)	14 (18%)	121 (77%)	
Cannot n (%)	101 (43%)	65 (82%)	36 (23%)	

*MCA- middle cerebral artery, NIHSS – national institutes of health stroke scale, IQR = interquartile range, tPA- tissue plasminogen activator.

Table 3 Multivariate logistic regression analysis of statistically significant predictors of early transition to palliative level of care

Variable	Sig	OR* (95% CI)
Age	<0.001	**1.105 (1.056-1.155)**
Atrial fibrillation	0.529	0.754 (0.313-1.816)
Left vs. Right Location of Infarct	0.039	**0.417 (0.182-0.956)**
Admit NIHSS score*	**0.017**	**3.038 (1.222-7.555)**
Intraarterial tPA	<0.001	**7.106 (2.541-19.873)**
Weekday vs. weekend patient admission	0.239	1.690 (0.706-4.049)
Ability to be assessed on 1st swallow evaluation	<0.001	**0.053 (0.022-0.131)**

*NIHSS-national institutes of health stroke scale score, tPA- tissue plasminogen activator, OR- odds ratio.

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Discussion:

- *Advancing age*
- *Left MCA infarct*
- *High NIHSS on admission*
- *Administration of intra-arterial tPA*
- *Inability to be assessed on the first swallow evaluation*

DYSPHAGIA AS A PREDICTOR OF OUTCOME AND TRANSITION TO PALLIATIVE LEVEL OF CARE AMONG MCA ISCHEMIC STROKE PATIENTS:

Discussion:

- *Decision to withdraw care usually based on prognosis and functional outcome, co-morbidities, availabilities of treatment and/ or patient wishes and values.*
- *Dysphagia factors are important: ability to undergo the evaluation and severity of dysphagia*
- *These predictors may aid in goals of care discussion*

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Limitations:

- *Retrospective*
- *Single institution*
- *Limited generalizability to MCA strokes only*
- *Small number of patients*
- *Limited availability of content of family meetings*

DYSPHAGIA AS A PREDICTOR OF OUTCOME AND TRANSITION TO PALLIATIVE LEVEL OF CARE AMONG MCA ISCHEMIC STROKE PATIENTS:

Further studies:

- *Clinical implications of "time to transition" to palliative care*
- *Effects on caregiver, health care costs and utilization.*

REFERENCES

1. Holloway RG, Arnold R, Creutzfeldt Claire, Lewis E, Lutz B et al. Palliative and End-of-Life Care in Stroke. A Statement for Healthcare Professionals rom the American Heart Association/ American Stroke Association. Stroke. 2014; 45: 1887-1916.
2. National Consensus Project for Quality Palliative Care
3. Manfredi P, Morrison R, Morris J, Goldhirsch SL, Carter J, Meier D. Palliative care consultations: How do they impact the care of hospitalized patients? J Pain Symptom Manage 200, 20:166-73.
4. Santa-Emma P, Roach R, Gill M, Spayde P, Tayolor R. Development and implementation of an inpatient acute palliative care service. J Palliat Med 2002, 5: 93-100.
5. Mazzocato C, Michel-Nemitz J, Anwar D, Michel P. The last days of dying storke patients referred to a palliative care consult team in an acute hospital. Eur J Neurol 2010, 17: 73-77.
6. Blacquiere D, Gubitz G, Dupere D et al. Evaluating an organized palliative care approach in patients with severe stroke. Can J Neurol Sci 2009, 36: 731-734.