Morbidity & Mortality of Weekend verses Weekday Admissions for Diabetic Ketoacidosis: Analysis of NIS Database

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Introduction

- Management of diabetic ketoacidosis (DKA) requires close monitoring with frequent finger-sticks and blood work.
- Limitations in the availability of staffing on weekends may alter the morbidity and mortality of these patients.
- **Aim:** To assess the difference in complications and mortality rates between hospitalized DKA patients on the weekend vs. weekday.

Methods

- **Database:** 2010-2014 U.S. Nationwide Inpatient Sample
- **Inclusion Criteria:** ≥18 yo and hospitalized for DKA (ICD-9 codes: 250.1 or 250.3)
- **Statistical Models:** Differences in in-hospital mortality between patients admitted on the weekend verses the weekday were evaluated by using a logistic regression model, adjusting for patient and clinical factors.

		All Patients	Weekday	Weekend	p-value
		Median (1st, 3rd Quartile)			
Age	Years	40 (27, 53)	40 (27, 53)	39 (27, 53)	**<0.001**
Length of Stay	Days	3 (2, 4)	3 (2, 4)	3 (2, 4)	0.906
		Frequency n (%)			
Race	White	100,750 (58%)	73,847 (58%)	26,903 (58%)	0.325
	Black	45,253 (26%)	33,356 (26%)	11,897 (26%)	
	Hispanic	19,861 (11%)	14,494 (11%)	5,367 (12%)	
	Asian	1,842 (1%)	1357 (1%)	485 (1%)	
	Native American	1,657 (1%)	1196 (1%)	461 (1%)	
	Other	4,384 (3%)	3214 (3%)	1170 (3%)	
Gender	Male	87,292 (50%)	64,049 (50%)	23,243 (50%)	0.918
	Female	88,508 (50%)	64,921 (50%)	23,587 (50%)	
Mortality	No	174,336 (99.2%)	127,928 (99.2%)	46,408 (99.1%)	**0.049**
	Yes	1,393 (0.793%)	989 (0.767%)	404 (0.863%)	

	Weekend (n = 46,830)		Weekday (n = 128,972)		p-value
Cerebral Edema	44	0.09%	110	0.09%	0.706
Pulmonary Edema	27	0.06%	55	0.04%	0.901
Venous Thrombus	47	0.10%	140	0.11%	0.321
Intestinal Necrosis	12	0.03%	38	0.03%	0.337
Hypoglycemia	14	0.03%	59	0.05%	0.075
Hypokalemia	9784	20.89%	26863	20.83%	0.615

Results

- 175,802 admissions for DKA
- Increased risk of death for patients admitted on weekend vs. weekday
- Odds ratio (OR) of mortality for patients admitted on a weekend vs. weekday: 1.16 (95% CI: 1.03-1.31), adjusted for age, race, sex, LOS, and year admitted
- Odds that patients admitted on a weekend vs. weekday had an increased LOS was 1.03 (95% CI: 1.02-1.03)
- Similar risk of DKA complications between both groups

Conclusions

- Patients hospitalized on the weekend for DKA have a higher mortality
- Although mortality of these patients are higher the percentage of DKA complications and LOS between the two sets of patients were similar

Limitations: Hypothesized that increase in mortality is associated to limited staffing on weekends, however this data cannot be used to demonstrate a causal relationship between the two