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Weekend versus Weekday Admission and Mortality from Myocardial Infarction

William J. Kostis, Ph.D., Kitaw Demissie, M.D., Ph.D., Stephen W. Marcella, M.D., M.P.H.,
Yu-Hsuan Shao, M.H.S., Alan C. Wilson, Ph.D., and Abel E. Moreyra, M.D.,
for the Myocardial Infarction Data Acquisition System (MIDAS 10) Study Group

ABSTRACT

BACKGROUND

Management of acute myocardial infarction requires urgent diagnostic and therapeutic procedures, which may not be uniformly available throughout the week.

METHODS

We examined differences in mortality between patients admitted on weekends and those admitted on weekdays for a first acute myocardial infarction, using the Myocardial Infarction Data Acquisition System. All such admissions in New Jersey from 1987 to 2002 (231,164) were included and grouped in 4-year intervals.

From the Department of Medicine, Robert Wood Johnson Medical School, Piscataway, NJ (W.J.K., Y.-H. S., A.C.W., A.E.M.); and the Department of Epidemiology, School of Public Health, University of Medicine and Dentistry of New Jersey, New Brunswick (K.D., S.W.M.). Address reprint requests to Dr. Kostis at the University of Medicine and Dentistry of New Jersey—Robert Wood Johnson Medical School, 1 Robert Wood Johnson Pl., P.O.

RESULTS

There were no significant differences in demographic characteristics, coexisting conditions, or infarction site between patients admitted on weekends and those admitted on weekdays. However, patients admitted on weekends were less likely to undergo invasive cardiac procedures, especially on the first and second days of hospitalization ($P < 0.001$). In the interval from 1999 to 2002 (59,786 admissions), mortality at 30 days was significantly higher for patients admitted on weekends (12.9% vs. 12.0%, $P = 0.006$). The difference became significant the day after admission (3.3% vs. 2.7%, $P < 0.001$) and persisted at 1 year (1% absolute difference in mortality). The **difference in mortality at 30 days** remained significant after adjustment for demographic characteristics, coexisting conditions, and site of infarction (**hazard ratio, 1.048**; 95% confidence interval [CI], 1.022 to 1.076; $P < 0.001$), but it became nonsignificant after additional adjustment for invasive cardiac procedures (**hazard ratio, 1.023**; 95% CI, 0.997 to 1.049; $P = 0.09$).

CONCLUSIONS

For patients with myocardial infarction, **admission on weekends is associated with higher mortality and lower use of invasive cardiac procedures. Our findings suggest that the higher mortality on weekends is mediated in part by the lower rate of invasive procedures, and we speculate that better access to care on weekends could improve the outcome for patients with acute myocardial infarction.**

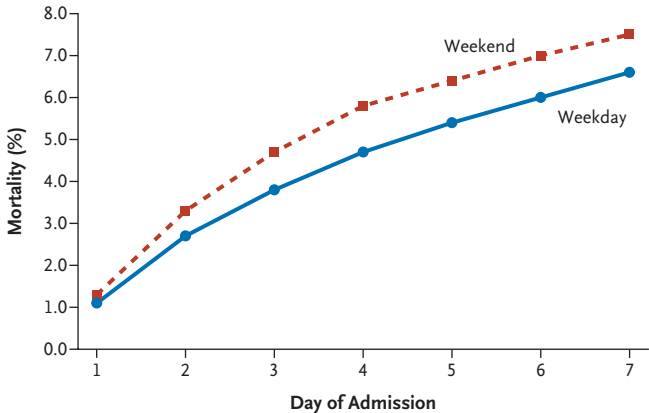


Figure 1. Mortality for Weekend versus Weekday Admissions According to Day of Admission, 1999–2002.

Table 3. Mortality among Patients Admitted on Weekends and Patients Admitted on Weekdays.*

No. of Days from Admission	1987–1990			1991–1994			1995–1998			1999–2002		
	Weekdays	Weekends	P Value	Weekdays	Weekends	P Value	Weekdays	Weekends	P Value	Weekdays	Weekends	P Value
	<i>percent (mortality)</i>			<i>percent (mortality)</i>			<i>percent (mortality)</i>			<i>percent (mortality)</i>		
Day of admission	2.2	2.5	0.04	1.8	1.8	0.94	1.6	1.6	0.34	1.1	1.3	0.09
Day 2	4.5	5.2	0.001	3.8	4.0	0.35	3.6	3.5	0.71	2.7	3.3	<0.001
Day 3	6.0	6.7	0.005	5.0	5.2	0.24	4.9	4.8	0.80	3.8	4.7	<0.001
Day 4	7.2	7.9	0.007	5.9	6.2	0.16	5.8	5.6	0.39	4.7	5.8	<0.001
Day 5	8.1	8.8	0.01	6.7	7.0	0.20	6.5	6.4	0.48	5.4	6.4	<0.001
Day 6	8.8	9.5	0.02	7.3	7.7	0.16	7.1	7.0	0.73	6.0	7.0	<0.001
Day 7	9.4	10.1	0.03	7.8	8.3	0.04	7.6	7.7	0.87	6.6	7.5	<0.001
In-hospital	14.5	15.1	0.11	11.8	12.2	0.20	10.4	10.2	0.41	9.3	9.9	0.03
Day 14	12.5	13.2	0.03	10.4	10.9	0.09	10.2	10.2	0.86	9.4	10.4	<0.001
Day 21	13.9	14.7	0.01	11.6	12.2	0.08	11.5	11.4	0.72	10.9	11.8	0.002
Day 30	15.1	16.0	0.009	12.6	13.1	0.10	12.6	12.4	0.69	12.0	12.9	0.006
Day 180	20.5	21.5	0.01	18.0	18.5	0.14	18.1	17.8	0.38	18.9	20.0	0.005
Day 365	23.7	24.6	0.02	21.0	21.7	0.09	21.4	21.2	0.61	22.9	23.9	0.01
Hazard ratio for day 2 mortality (95% CI)	days 1 & 2 combined				1.033 (0.985–1.083)		1.007 (0.958–1.057)			1.121 (1.064–1.180)		
Hazard ratio for day 7 mortality (95% CI)	days 1,2,3,4,5,6,7 combined				1.044 (1.011–1.078)		1.014 (0.982–1.048)			1.080 (1.045–1.116)		
Hazard ratio for total in-hospital mortality (95% CI)					1.034 (1.009–1.059)		1.025 (0.997–1.054)			1.055 (1.024–1.086)		
Hazard ratio for day 30 mortality (95% CI)	days 1,2, ..., 29,30 combined				1.038 (1.011–1.066)		1.007 (0.981–1.034)			1.048 (1.022–1.076)		
Hazard ratio for day 365 mortality (95% CI)	days 1,2, ... 364,365 combined				1.033 (1.012–1.054)		1.005 (0.985–1.026)			1.037 (1.017–1.056)		

* Hazard ratios are adjusted for age, sex, site of myocardial infarction, and coexisting conditions.