



Trends in the Treatment and Outcomes of Patients With Non-ST-Segment Elevation Acute Coronary Syndromes Managed Medically Without Cardiac Catheterization



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ABSTRACT

BACKGROUND: Despite emphasis on early invasive management for non-ST-segment elevation acute coronary syndromes (NSTEMI ACS), many patients receive medical management (MED) without cardiac catheterization as the sole treatment strategy.

METHODS: We characterized temporal patterns of the use of MED in patients with NSTEMI ACS (ischemic ECG changes and/or positive cardiac markers) from the CRUSADE initiative treated at 547 U.S. hospitals (1/02-12/05).

RESULTS: Among 138,714 patients, 39,662 (28.6%) were in the MED group; 29,109 (21.0%) received cardiac catheterization (CATH) without revascularization; 54,846 (39.5%) underwent percutaneous coronary intervention (PCI); and 15,097 (10.9%) underwent bypass surgery (CABG). During the study interval, use of MED decreased from 30.6% to 25.6% use of PCI increased from 36.2% to 43.1%, and use of CATH and bypass surgery remained relatively constant. Temporal improvements in care were observed in patients in the MED group over 4 years (Table). Unadjusted in-hospital mortality rates in the MED group declined from 8.0% to 6.6% over the study interval.

CONCLUSIONS: Despite lower use of evidence-based medications for NSTEMI ACS patients managed medically than those receiving an invasive strategy, encouraging trends for improvements in care and lower mortality rates suggest that more widespread application of guideline recommendations may further ameliorate adverse outcomes in this high-risk population.

DISCLOSURE

CRUSADE is sponsored through educational grants from Schering-Plough Corporation, Millennium Pharmaceuticals, Bristol-Myers Squibb/Sanofi, and Merck.

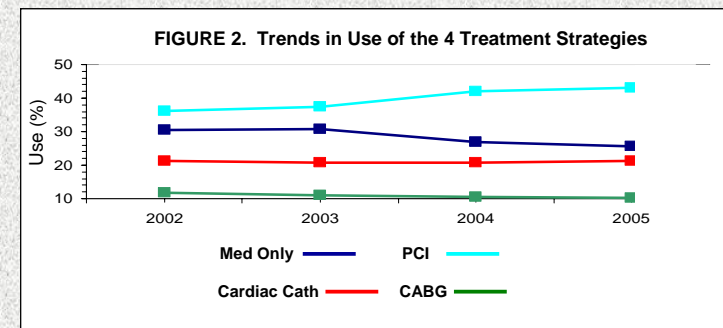
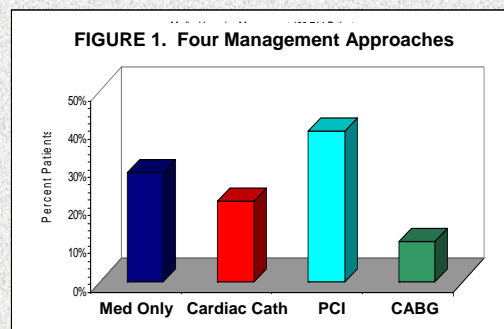
BACKGROUND

- Contemporary guidelines support an invasive approach for the early management of patients with nonST elevation (NSTEMI) acute coronary syndrome (ACS)
- Guidelines also recommend specific medical therapies for these patients irrespective of whether they undergo invasive management or solely medical therapy.
- The CRUSADE Initiative and other studies have shown a persistent underuse of both invasive and non-invasive methods of management for these patients.
- These treatment deficiencies have been especially notable in the high-risk subgroup of NSTEMI ACS patients.
- Our objectives were to assess:
 - Current management of patients with ACS with special reference to those who do not undergo an invasive approach.
 - Trends in the application of invasive and non-invasive management.
 - Trends in clinical outcomes associated with medical therapy only and invasive management.

METHODS

- We analyzed data in 138,714 patients with NSTEMI ACS treated at 547 hospitals participating in the CRUSADE (Can Rapid Risk Stratification of Unstable Angina Patients Suppress Adverse Outcomes with Early Implementation of ACC/AHA Guidelines) Quality Initiative from January 2002 through December 2005. All patients had ischemic ECG alterations and/or positive cardiac injury markers.
- Patients were categorized into 4 treatment strategies:
 - Medical therapy only (**Med Only**)
 - Cardiac catheterization, no revascularization (**Cardiac Cath**)
 - Percutaneous coronary intervention (**PCI**)
 - Coronary artery bypass graft surgery (**CABG**)
- Trends in the application of the 4 treatment strategies during the study period (2002-2005) were examined in relation to the following features of each group:
 - Clinical characteristics
 - Use of medical therapies
 - Clinical outcomes

RESULTS



	Med Only n=39,662	Card. Cath n=29,109	PCI n=54,846	CABG n=15,097	P value
Demographics					
Median Age (yr)	78	66	63	65	<0.0001
Median BMI	26	28	28	28	<0.0001
White race	77	77	83	84	<0.0001
Female	51	44	33	30	<0.0001
Medical history					
Family History CAD	25	36	40	41	<0.0001
Hypertension	75	71	66	69	<0.0001
Diabetes	39	33	28	34	<0.0001
Peripheral arterial dis.	17	12	8	10	<0.0001
Current/recent smoker	16	28	34	31	<0.0001
Dyslipidemia	41	51	54	53	<0.0001
Prior MI	37	31	26	22	<0.0001
Prior PCI	17	23	25	17	<0.0001
Prior CABG	23	26	18	7	<0.0001
Prior CHF	35	16	8.8	8	<0.0001
Prior Stroke	18	10	6	7	<0.0001
Renal insufficiency	26	13	7	8	<0.0001
Presenting Features					
ST Depression	34	32	33	40	<0.0001
Pos. Cardiac Markers	88	89	90	90	<0.0001
CHF	40	22	13	19	<0.0001
ACS Type					
NSTEMI	90	91	93	93	<0.0001
Unstable Angina	10	9	7	7	<0.0001

BMI=body mass index, MI=myocardial infarction, PCI=percutaneous coronary intervention, CABG=coronary bypass graft, CHF=congestive heart failure, ST=segment on admission ECG, renal insufficiency=creatinine >2.0 mg/dL, need for dialysis or estimated creatinine clearance <30cc/min. *p value comparing 4 groups

	Med Only		Cardiac Cath		PCI		CABG	
	2002	2005	2002	2005	2002	2005	2002	2005
Acute Medications (< 24 hrs)								
Aspirin	89	93	92	96	94	98	90	96
Beta-blocker	72	89	79	88	79	89	80	94
Heparin	69	79	85	92	90	91	90	93
Clopidogrel	22	40	32	40	62	75	26	35
GPIIb/IIIa	10	15	26	30	60	63	35	44
Discharge Medications								
Aspirin	82	90	88	93	95	98	92	97
Beta-blocker	77	91	82	90	86	94	82	93
Clopidogrel	28	45	38	50	90	95	15	32
ACE inhibitor	59	65	65	65	65	67	45	55
Statins or other lipid lowering agents	68	81	79	89	87	94	70	87

P value comparing 4 groups

	Med Only	Cardiac Cath	PCI	CABG
Death (%)	7.6	2.1	1.0	3.5
MI (%)	2.9	1.6	2.7	3.4
Cardiogenic Shock (%)	2.3	1.5	1.9	4.7
Heart failure (%)	12.7	6.9	4.3	12.4
Stroke (%)	1.1	0.7	0.4	1.7
RBC transfusion (%)	14.0	7.8	6.7	59.4

LIMITATIONS

- The CRUSADE registry has limitations inherent in observational, nonrandomized data.
- Physicians were not surveyed to determine contraindications to medications
- Physicians were not surveyed to determine the basis for lack of cardiac catheterization and revascularization.
- Noncardiovascular comorbidities were not documented.

CONCLUSIONS

- In patients with NSTEMI ACS:
- Contrary to current guidelines, a large proportion of patients receive solely medical management.
 - There is a disparity based on age, gender and race in the application of an invasive strategy
 - Although they have the highest mortality, patients treated solely with medical management receive the least intensive, guideline recommended pharmacologic therapy.
 - However, there are encouraging trends in the increased use of evidence-based medications and in the frequency of PCI.
 - But despite these favorable findings, under-use of evidence-based therapy persists and reflects the need for more widespread application of guideline recommended management, especially in patients receiving solely medical therapy.