中文題目：急性冠心症不典型表現病人的特徵與預後探討

英文題目：Characteristics and outcomes of atypical presentations in patients with acute coronary syndrome

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Background

According to previous observation studies-- Framinhan's Heart study and GRACE[1], acute coronary syndrome (ACS) happens more frequently in geriatric group. Besides, elderly were noted to have poorer outcome due to fraily health condition, more co-morbidities, and lesser adherence to evidence-base therapies. Prompt diagnosis and early intervention may reverse the trend. However, the impact of atypical presentations deserves us to pay attention, because it happens to elderly commonly and may mislead our first impression as well as delay the golden hour to therapies. To clarify the characteristic of atypical presentations in ACS patients, and its impact on outcome, we performed analysis using experience of National Cheng Kung University Hospital (NCKUH).

Methods

This observational study was conducted on a retrospective cohort of NCKUH from 2006 through 2008. In-patients with ICD-9-CM code of 410.xx, 411.xx and 413.xx were recruited for reviewing medical records comprehensively. Demographic factors and clinical characteristics, including type of ACS were stratified by 2 age groups (>65 y/o vs $\leqq$65 y/o) for analysis. Atypical presentation was defined as if patients presented other than chest pain or chest discomfort at hospital arrival. The primary outcome is in-hospital mortality and the 2nd outcome includes hospital stay and complications. A t-test or Chi-square test was used to make statistic of univariate, and multiple logistic regression by backward, stepwise mode was used to determine the independent factors of in-hospital mortality.

Results

In total of 558 enrolled patients, 53% of them were elderly. In the patients suffering from ACS, old age was more associated to higher rate of complications,

in-hospital mortality and co-mobidities, such as hypertension, previous stroke, renal failure, chronic obstructive pulmonary disease. Comparing to the group of younger age, geriatrics exhibited more atypical presentation (14.3% v.s. 26.3%, respectively, P:0.001), especially dyspnea and general weakness. On the other hand, atypical presentations were observed to relate to elderly, female, prolonged hospitalization, concomitant congestive heart failure, chronic kidney disease and bed-ridden status significantly. Besides, patients with atypical presentations were noted to have significantly higher in-hospital mortality, in-hospital complication, and length of stay, but less invasive therapy and guideline-recommended medical therapy which implicated ACS in elderly especially atypical presentation may be underestimated and delayed to treatment. Furthermore, higher rate of non-ST elevation myocardial infarction(MI) and coronary bypass surgery was observed in atypical presentation group, which could be explained by chronic atherosclerosis contributing to multiple severe coronary artery stenosis. Multiple logistic regression revealed ST elevation MI (OR: 10.8; 95%CI:- 2.58-0.65), elderly(OR: 3.5 95%CI:-1.90-0.05) and atypical presentation(OR: 8.8; 95%CI:-2.23-0.45) were independent factors of in-hospital mortality.

Discussion

According to previous literature review, of all patients presenting chest pain at the emergency department(ED), less than 25% have ACS[2]. On the contrary, Canto et al.[3] found that in 434,877 patients diagnosed with MI, up to 33% did not present with typical chest pain. Several previous multinational, prospective, observational study suggested that there is a higher rate of atypical presentation in the elderly population leading to a worse prognosis[1,3] Patients with ACS discharged from the ED without an accurate diagnosis had twice mortality rate of those admitted to a hospital owing to a possible delay in the implementation of effective therapeutics and the risk of sudden death. [4] Besides, dyspnea has been identified as the most frequent symptom of MI in patients older than 85 years. [5] Those without chest pain tended to be older and have a higher proportion of women, diabetics and heart failure comorbidities. The major mechanisms of atypical presentation of ACS are still not clear. Chest pain may arise from the stimulation of either visceral or somatic pain fibers, difficult to localize. Besides, repeated silent ischemia after MI, diabetes, chronic renal failure may deprive afferent innervations and the patients may lose chest pain sensation. Our study revealed atypical presentation was associated with elderly significantly, and did be an

independently negative outcome-determinant in patients with ACS. Increased diagnostic periods and less promptly optimal therapy was the cause. It was also associated with longer hospital stay, higher in-hospital complication. As a rapid growth of aged population, we need to pay more emphasis on this reality. When we encounter elderly presenting with dyspnea, general weakness etc. initially, the diagnosis of ACS should be always taken into deep consideration until it could be excluded.

Reference

1.Alvaro Avezum, Marcia Makdisse, Frederick Spencer et al. Impact of age on management and outcome of acute coronary syndrome: Observations from the Global Registry of Acute Coronary Events (GRACE). Am Heart J 149, 67-73. (2005)

2. Lee TH, Goldman L. Evaluation of the patient with acute chest pain. N Engl J Med 2000; 342: 1187–95.

3. Canto JG, Shlipak MG, Rogers WJ, et al. Prevalence, clinical characteristics, and mortality among patients with myocardial infarction presenting without chest pain. JAMA 2000; 283: 3223–9.

4. Boie ET. Initial evaluation of chest pain. Emerg Med Clin North Am 2005; 23: 937–57.

5. Jones ID, Slovis CM. Emergency department evaluation of the chest pain patient. Emerg Med Clin North Am 2001; 19: 269–82.

Table 1

	<65	≥65	P value
Patients No.(n)	258	300	
Type			
STEMI(n,%)	133(51.6)	112(37.3)	0.002
NSTEMI/UA(n,%)	125(48.4)	188(62.7)	0.002
Gender			
Male(n,%)	208(80.6)	200(66.7)	
Female(n,%)	50(19.4)	100(33.3)	<0.001
Age at admission	52.9±8.2	74.8±7.1	<0.001
Length of stay			
Emergency room	13.4±19.4	15.2±16.7	0.625
Hospitalization	7.8±9.3	9.5±8.2	0.026
Comorbidities			
Hypertension(n,%)	150(58.1)	216(72.0)	0.001
Diabetes mellitus(n,%)	91(35.3)	113(37.7)	0.558
Dyslipidemia(n,%)	84(32.7)	78(26.0)	0.083
Current smoker(n,%)	132(51.2)	74(24.7)	<0.001
CHF(n,%)	12(4.7)	25(8.3)	0.081
Previous stroke(n,%)	8(3.1)	43(14.3)	<0.001
CKD(n,%)	27(10.5)	60(20.0)	0.002
CAD(n,%)	35(13.6)	59(19.7)	0.055
COPD(n,%)	3(1.2)	16(5.3)	0.008
Dementia(n,%)	0(0)	4(1.3)	0.128
Invasive strategy			
CAG(n,%)	253(98.1)	292(97.3)	0.569
PCI(n,%)	228(88.3)	251(83.7)	0.112
CABG(n,%)	10(3.9)	31(10.3)	0.029
Atypical presentation(n,%)	37(14.3)	79(26.3)	0.001
Complication(n,%)	60(23.3)	124(41.3)	<0.001
Inhospital mortality (n,%)	6(2.3)	19(6.3)	0.023

STEMI: ST-segment elevation myocardial infarction

NSTEMI: Non ST-segment elevation myocardial infarction

CHF: Congestive heart failure; CAD: Coronary artery disease

CKD:Chronic kidney disease; COPD: Chronic obstructive pulmonary disease

PCI: Percutaneous coronary intervention

CAG: Coronary angiography

CABG: Coronary artery bypass surgery

P value by Chi square test except Dementia, COPD by Fisher exact test; and length of stay/age at admission by T-test

Table 2

	Typical	Atypical	P value
Patients No.(n)	442	116	
Age≥65(n,%)	221(50.0)	79(68.1)	0.001
Type			
STEMI(n,%)	201(45.5)	44(37.9)	0.344
NSTEMI/UA(n,%)	231(54.5)	72(62.1)	0.344
Gender			
Male(n,%)	343(77.6)	65(56.0)	
Female(n,%)	99(22.4)	51(44.0)	<0.001
Age at admission	63.5±13.0	69.2±13.4	<0.001
Length of stay			
Emergency room(hour)	14.1±17.3	17.6±20.5	0.067
Hospitalization(day)	7.9±7.6	11.8±11.6	<0.001
Comorbidities			
Diabetes mellitus(n,%)	156(35.3)	48(41.4)	0.226
Current smoker(n,%)	175(39.6)	31(26.7)	0.011
CHF(n,%)	23(5.2)	14(12.1)	0.008
Previous stroke(n,%)	40(9.0)	11(9.5)	0.885
CKD(n,%)	61(13.8)	26(22.4)	0.023
Bed-ridden(n,%)	0(0)	4(3.4)	<0.001
COPD(n,%)	12(2.7)	7(6.0)	0.079
Dementia(n,%)	2(0.5)	2(1.7)	0.192
Invasive strategy			
PCI(n,%)	396(89.6)	83(71.6)	<0.001
CABG(n,%)	24(5.4)	17(14.7)	0.003
Aspirin	436	111(95.1)	0.042
Plavix	429(97.1)	106(91.4)	0.006
Heparin	440(99.5)	111(95.1)	0.005
Complication(n,%)	119(26.9)	65(56.0)	<0.001
Inhospital mortality (n,%)	12(2.7)	13(11.2)	0.023
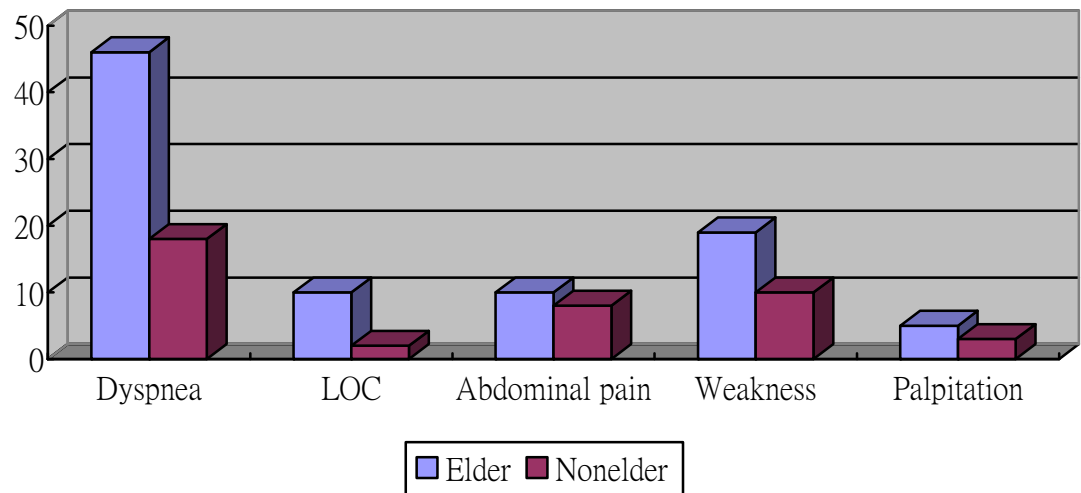
Multivariate analysis of in-hospital mortality by logistic regression

Parameter*		Odds Ratio	95% CI	P value
Elder	Yes vs No	3.5	-1.90 – 0.05	0.063
Atypical presentation	Yes vs No	8.8	-2.23 – 0.45	0.003
STEMI	Yes vs No	10.8	-2.58 – 0.65	0.001
Shock	Yes vs No	2.6	-2.65 – 0.27	0.110

Univariates with $p \leqq 0.15$ were recruited to multivariate logistic regression analysis using stepwise mode.