

Improvement of Reperfusion time for STEMI using automated SMS-messaging program following computer interpretation of electrocardiogram within EMR system [CODE HEART]

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## Background

For improving outcomes of early treatment for acute STEMI, recent recommended target times include < 90 minutes for primary PCI (door-to-balloon time) and < 30 minutes for thrombolysis (door-to-needle time).

## Purpose

We constructed automated CODE HEART activation system using electronic medical record (EMR) to improve reperfusion time for acute STEMI patient (Fig 1), and investigated the usefulness of this system.

## Methods and Results

A total 126 STEMI patients were visited to emergency room of our hospital from August 2010 through July 2012. Those patients were divided into two groups: CODE HEART activated group (n=45) and CODE HEART not-activated group (n=81). There is no significant difference in baseline clinical characteristics. Door-to-balloon time is significantly shortened ( $62.3 \pm 25.6$  vs.  $85.7 \pm 74.2$  minutes,  $p=0.017$ ) and achievement rate of target reperfusion times is significantly improved (95.6% vs. 77.8%,  $p=0.010$ ) in CODE HEART activated group (Fig 2).

## Conclusion

CODE HEART alerting system is very useful to improve reperfusion time for acute STEMI patients.

Fig 1.

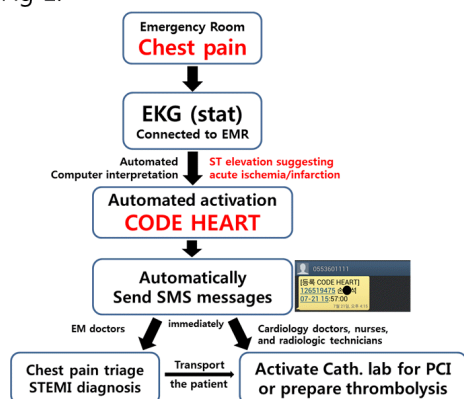


Fig 2.

acute STEMI	CODE HEART		p value
	activated (N=45)	not activated (N=81)	
AGE	64.6 ± 13.8	61.0 ± 11.6	0.126
Male (%)	34 (76)	56 (69)	0.445
Infarction Related Artery (%)			
LM	1 (2.2)	4 (4.9)	0.296
LAD	26 (57.8)	33 (40.7)	
LCX	5 (11.1)	10 (12.3)	
RCA	13 (28.9)	34 (42.0)	
Risk factors & Comorbidities			
Hypertension	24 (53.3)	43 (53.1)	0.979
Diabetes mellitus	12 (26.7)	25 (30.9)	0.620
Dyslipidemia	15 (33.3)	28 (34.6)	0.889
Smoking	25 (55.6)	46 (56.8)	0.893
Family History	2 (4.4)	6 (7.4)	0.711
old CVA	3 (6.7)	7 (8.6)	1.000
old MI	4 (8.9)	5 (6.2)	0.720
Coronary artery disease	5 (11.1)	8 (9.9)	1.000
Previous PCI	4 (8.9)	6 (7.4)	0.744
Heart Failure	0 (0)	4 (4.9)	0.296
Reperfusion method			
PCI	38 (84.4)	73 (90.1)	0.346
Thrombolysis	7 (15.6)	8 (9.9)	
Treatment result			
Door-to-balloon time (min)	62.3 ± 25.6	85.7 ± 74.2	<b>0.017</b>
Door-to-needle time (min)	21.6 ± 5.5	65.5 ± 54.2	0.056
At goal			
PCI < 90 min	36 (94.7)	59 (80.8)	0.052
Thrombolysis < 30 min	7 (100)	4 (50)	0.077
Both	43 (95.6)	63 (77.8)	<b>0.010</b>
LVEF after reperfusion treatment	49.8 ± 11.1	50.6 ± 15.5	0.733

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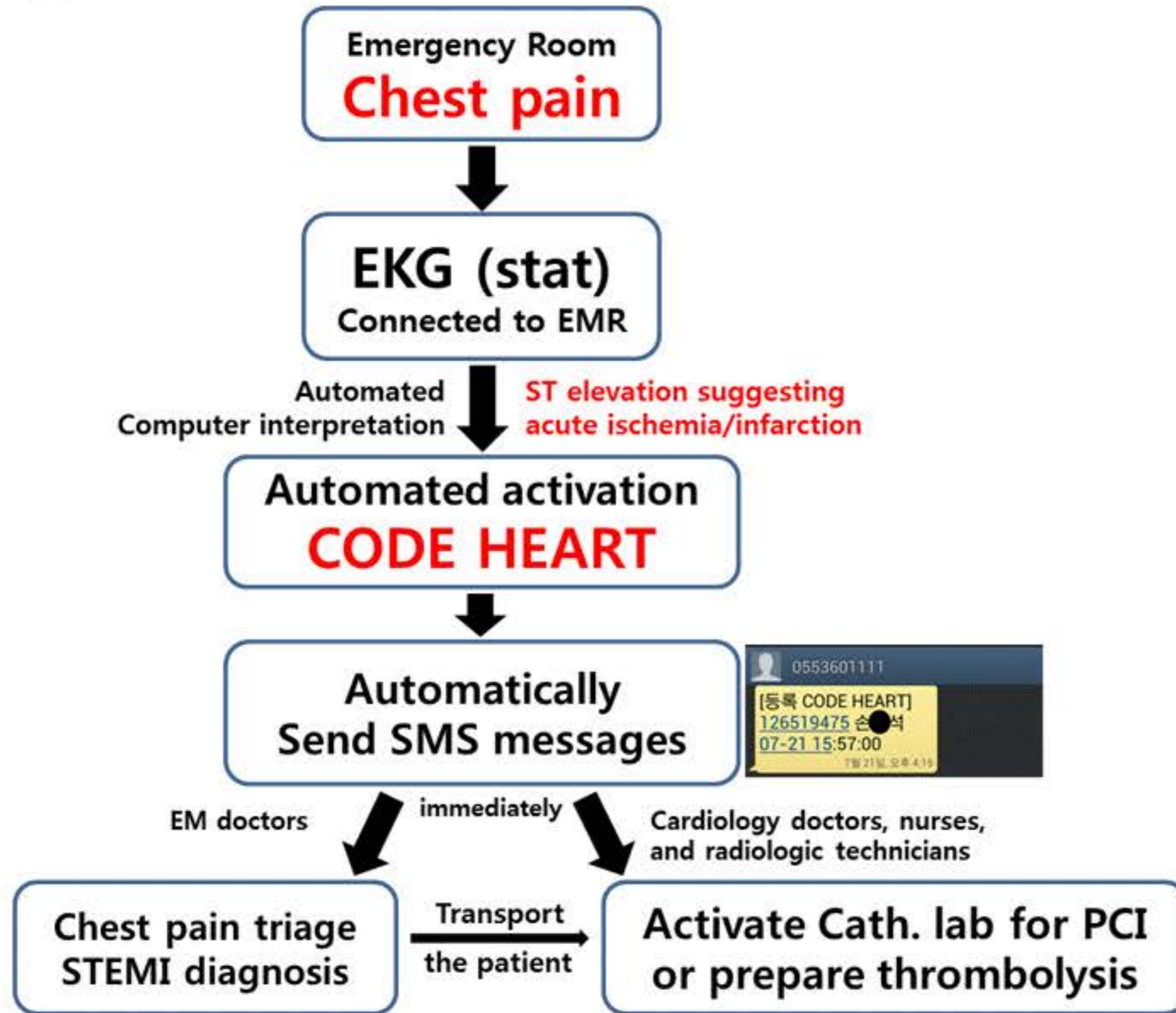


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