

Clinical impact of COVID-19 outbreak on ST-segment elevation myocardial infarction (STEMI)

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Background/Aims: Since January, 2020, South Korea has experienced an outbreak of coronavirus disease. Clinical impact of Coronavirus Disease 2019 (COVID-19) Outbreak on ST-segment elevation myocardial infarction (STEMI) was not sufficiently evaluated. In this study, we compared baseline characteristics of patients with STEMI and patient delay before and after COVID-19 outbreak.

Methods: A total of 72 patients with STEMI was evaluated, retrospectively. From February 1, 2020, to April 30, 2020, we observed 29 patients with STEMI via emergency department (N=29). We compared these with data from 43 patients with STEMI via emergency department in the prior 3 year for same months from February 1 to April 30, in 2017, 2018, and 2019 (N=43).

Results: Post COVID-19 patients of with STEMI have longer mean time delay from symptom onset to first medical contact than those before COVID-19 outbreak (160.7 minutes vs 289.3 minutes, $p=0.007$). Also, post COVID-19 STEMI patients showed higher neutrophil count ($8,700 \pm 4,200$ vs $6,600 \pm 3,700$, $p=0.028$) and higher proportion of segment form neutrophil count ($67.3 \pm 18.9\%$ vs $58.2 \pm 18.1\%$, $p=0.043$).

Conclusions: After COVID-19 patients with STEMI have longer 1st time delay and increased inflammatory marker compared with patients with STEMI before COVID-19 break.

Table Time delay

	Pre COVID-19 (n=43, 59.7%)	Post COVID-19 (n=29, 40.3%)	p value
Weekend	11 (25.6%)	10 (34.5%)	0.265
1st delay	160.7±203.9	289.3±382.2	0.007
2nd delay	82.5±92.1	93.2±110.0	0.734

Table Laboratory finding

	Pre COVID-19 (n=43, 59.7%)	Post COVID-19 (n=29, 40.3%)	p value
CKMB (initial)	17.8±45.4	40.3±77.2	0.164
TnI (initial)	1.34±4.3	4.5±12.0	0.186
CKMB (peak)	181.2±99.4	203.8±94.2	0.336
TnI (peak)	47.3±36.5	20.8±8.5	<0.001
Day of downslope of CKMB	2.7±0.6	2.5±0.6	0.206
Potein	7.1±0.6	7.2±0.7	0.426
Na	137.0±2.5	135.8±2.9	0.063
K	3.9±0.7	3.8±0.6	0.558
Cl	105.1±2.8	102.6±3.7	0.002
AST	41.0±33.7	93.6±132.8	0.045
ALT	25.4±14.8	49.3±54.0	0.027
Amylase	52.1±21.1	56.1±24.9	0.469
lipase	34.0±27.7	30.2±23.0	0.548
A1c	6.1±0.9	6.7±1.6	0.062
Glucose	182.8±74.5	213.8±106.5	0.182
Chol	164.3±45.3	197.0±38.9	0.003
TG	129.0±85.9	184.0±105.5	0.023
HDL	45.9±10.6	47.6±13.6	0.550
LDL	96.8±30.3	120.8±28.7	0.002
EF	45.4±11.1	44.4±11.1	0.719
LAVI	22.7±12.0	20.1±6.1	0.363
LAMAI	89.0±28.0	82.4±21.9	0.354
WMS	23.7±5.5	26.0±7.1	0.151