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Achieving Sustainable Door-To-Balloon Time of 90 Minutes in a Tertiary Centre Hospital for St-Segment Elevation Myocardial Infarction

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Abstract

Chest pain is one of the most common presentation in emergency department and India has the highest burden of acute coronary syndrome in the world. Increasing awareness regarding it has lead to increased diagnosed cases and hence people getting early definitive treatment. Various studies have shown that door to balloon time within 90 min increases the survival rate. In this study, we analyse the door to balloon time of 90 min in a tertiary centre hospital for ST-elevation myocardial infarction.

Keywords: Infarction; ST-Segment Elevation; ECG.

Objectives

To achieve door-to-balloon times for PCI within 90 min in a STEMI patient.

Background

- India has the highest burden of ACS in the world. The CREATE registry has provided contemporary data on 20,468 patients from 89 centers from 10 regions and 50 cities in India.
- The median time from symptoms to hospital was 360 min (several times higher than in the US and other high income countries). However from hospital to thromolysis was only 50 minutes.
- 59% of patients with STEMI received thrombolytics (96% streptokinase). Coronary angioplasty was given to 8% of STEMI and 7% of non-STEMI; coronary bypass surgery was given to 2% of STEMI and 4% of NSTEMI/UA. The 30-day outcomes for patients with STEMI were: death 9%; reinfarction 2%; and stroke 0.7%.

Methods

Retrospective study for a period of 1 year from July, 2016 to June, 2017 was done. All STEMI patients regardless of comorbidites, transfer from other hospital were included in the study.

Inclusion Criteria

- Any age
- All STEMI patients
- Any co-morbidities
- Transfer from other hospitals.

Parameters Studied

- Average door to cath lab time (1),
- average cath lab to balloon time (2)
- average door to balloon time(1+2) was calculated.
- Data was collected from the STEMI-form attached with patients admission sheet which were filled by the ED doctor and doctor doing the procedure.

Results

- A total of 271 STEMI patients presented with STEMI during the study period. All the patients were taken up for Coronary angioplasty(100%).
- The average door to cath lab time was 15.45min.
- The average cath lab to balloon time was 28.4min.

Data

Month	No. of patients	No. of deaths	Door to Cath lab time (min)	Cath lab to balloon time (min)	Door to Balloon time (min)
July,16	15	1	11	22	33
August,16	15	1	10	19	29
Septembe,16	23	1	11.34	29.7	41.04
October,16	21	2	15.52	25.71	41.24
November,16	26	3	19.19	28.38	47.58
December,16	38	4	20.5	26.07	46.57
January,17	28	2	18.3	20	38.3
February,17	21	3	15.9	27	42.9
March,17	19	1	15.16	26.16	41.32
April,17	22	2	12	26.9	38.9
May,17	28	1	16.5	45.25	61.75
June,17	15	2	20	44.67	64.67
TOTAL	**271**	**23**	**15.45**	**28.4**	**43.85**

- The average door to balloon time calculated was 43.85min

Conclusions

- These results demonstrated that these timings are much less than the International and Indian standard protocol (<90Min).
- This reduced door to balloon time has decreased the length of stay in hospital and mortality in STEMI patients remarkably.

Abbreviation

STEMI- ST Elevation Myocardial Infarction

ACS - Acute Coronary Syndrome

PCI - Percutaneous Coronary Intervention

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