Fibrinolysis: a needed check up

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Purpose of the study

Utstein based out-of-hospital cardiac arrest (OHCA) registry shows an increase, during 2016, of the use of fibrinolytics in cardiac arrests. To determine the conditions of its use, to check compliance with ERC Guidelines and to compare results with those from our previous series.

Material and methods

Descriptive, retrospective, observational study of the OHCA assisted by SAMU-Asturias. Study period: July 1st 2013 to December 31st 2016.

Inclusion criteria: Patients that received fibrinolytics during advanced cardiovascular life support (ACLS) provided by EMS. Patients with suspected acute pulmonary embolism (APE) OHCA, with or without use of fibrinolytics.

Data collected from clinical reports, both in paper and digital, and Utstein based OHCA registry. Qualitative variables were compared with the Chi Square test.

Data analysed with SPSS Statistics 21 software.

Results

Out of 2251 PC registered, 31 (1.37%) received fibrinolytics during ACLS: 16 before 2016, and 15 in 2016. The increase is statistically significant ($p=0.021$). 23 of the patients (74.2%) were male; average age, 56.5 years ($s=15.3$). All 28 cases with registered etiology (3 missed cases) were of medical etiology.

Table I shows the epidemiological variables studied related to these events.

TABLE I: OHCA with use of fibrinolytics epidemiologic variables

	Pre 2016 n=15	2016 n=16	Total n=31
Witnessed arrest	14 (93.3%)	16 (100%)	30 (96.8%)
Bystanders	11 (73.3%)	12 (75.5%)	23 (74.2%)
EMS	3 (20.0%)	4 (25.0%)	7 (22.6%)
BLS prior to EMS arrival	7 (46.7%)	8 (61.5%)	15 (56.6%)
Suspected etiology registered ¹	12 (100%)	16 (100%)	28 (100%)
Cardiac	9 (75.0%)	11 (68.7%)	20 (71.4%)
APE	2 (16.7%)	5 (31.3%)	7 (25.0%)
Others	1 (8.3%)	0	1 (3.6%)
Initial shockable rhythm*	2 (13.3%)	10 (65.2%)	12 (38.7%)
Survived event	0	9 (56.3%)	9 (29.0%)
Cardiac	-	6 (37.5%)	6 (19.3%)
APE	-	3 (18.8%)	3 (9.7%)
Survival at discharge	0	3 (18.8%)	3 (9.7%)
Cardiac	-	3 (18.8%)	3 (9.7%)
APE	-	0	0

*Initial shockable rhythm rate is significantly higher in 2016 ($p=0.005$)

¹ 3 missed cases

There were 9 (29.0%) survived events, all in 2016: 6 with suspected cardiac etiology, 3 with suspected APE. Average time of return of spontaneous circulation (ROSC) after administration of fibrinolytics: 20.2 min ($s=16.7$) [2-53].

Hospital discharge with good neurological outcome (CPC 1-2) in 3 cases (9.7%), all of them witnessed CA of cardiac etiology with initial shockable rhythm.

Table II shows the management of suspected APE.

TABLE II: Management of OHCA with suspected APE

	Pre 2016 n=21	2016 n=7	p value
Non futile ACLS	17 (80.9%)	7 (100%)	0.545
Administration of fibrinolytics	2 (11.8%)*	7 (55.6%)	0.009
Survived event	4 (23.5%)*	3 (42.9%)	0.374
Survival at discharge	1 (5.9%)*	0	0.708

*n=17 (patients with non futile ACLS)

Bibliography:

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Figure 1 shows CPR times after fibrinolysis in patients without ROSC.

Figure 1. Time of CPR after the administration of fibrinolytics in patients without ROSC

Conclusions

- The use of fibrinolytics in OHCA increased in 2016, but survival rate didn't improve.
- Most of fibrinolytics were used in non suspected APE OHCA.
- Recommended CPR time after administration of fibrinolytics is not accomplished.
- There seems to be a contagion effect on treatment in OHCA due to suspected APE and OHCA of cardiac etiology, which according to literature is contraindicated.