Out of hospital cardiac arrest: anything new from aging cities?

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Purpose of the study

To investigate characteristics, treatments and outcomes amongst patients suffering out-of-hospital cardiac arrest (OHCA) in two cities, Udine and Trieste (Friuli Venezia Giulia, Italy), with different demographic features.

Materials and methods

All OHCA cases treated with cardiopulmonary resuscitation (CPR) by the Emergency Medical System (EMS) in the districts of Udine and Trieste from 01/01/2013 to 31/12/2014 were retrospectively included. Differences between the two communities and the EMSs are showed in Tables 1 and 2. Rescue time was defined as the interval from call to arrive at the scene of event. Fisher’s t test or chi-squared test were used to analyse comparisons.A P value of < 0.05 was considered significant.

Results

Results are shown in Tables 3 and 4. Differences between the two areas were found in the number of patients with an initial shockable rhythm, in the rescue time and in the CPR duration. Moreover, statistically significant differences were recorded overall in the reasons for dispatching after the emergency telephone calls, in the priority colour code assigned by the dispatcher and in the initial rhythm of patients.

Conclusions

In 2014 the city of Trieste was declared the second most aging city in Italy. Survival rates from OHCA’s were generally poor and there were no differences between the two cities. However, in Trieste there were more shockable rhythms.As there is no difference in terms of OHCA patients’ age between the two cities, we assume that CPR was not performed in some very elderly people who suffered from OHCA in Trieste, considering the different ageing index of the population. In spite of a major number of vehicles available on day and night, rescue time was longer in Trieste, probably reflecting the complexity of a city road system, which may affect planning and deployment of EMS.

Table 1

	surface (Km2)	population 2014, n.	population density (people per Km2)	% population >65y	ageing index
Udine metropolitan area	291,5	170891	586,2	24.3	196.8
Trieste metropolitan area	212,5	235700	1109,1	28.3	248.9
Italy	302072,8	60782668	201,2	21.4	154.1

References:

- ISTAT, 2014
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Table 2

	EMS dispatch site 8-20	EMS dispatch site 20-8	EMS team 8-20	EMS team 20-8
Udine	1	1	1 MT, 2 ALS, 1 BLS	1 MT, 1 ALS, 1 BLS
Trieste	6	3	1 MT, 4 ALS, 3 BLS	1 MT, 2 ALS, 2 BLS

Table 3

	UDINE	TRIESTE	test	p
patients number	213	249		
sex F, n.	77	94	chi-square	0.948
age (mean, 1-2-3 quartile)	73, 64-78-86	72.2, 65-74-84	fisher	0.248
ROSC, n.	64	73	chi-square	0.864
n. patients shock administered	52	96	chi-square	0.001
n. patients alive at discharge from hospital	18 (8.4%)	22 (8.8%)	chi-square	0.883
rescue time (min., mean, 1-2-3 quartile)	9.8 , 6-9-12	11.6 , 7-10-14)	fisher	0.001
CPR time (min., mean, 1-2-3 quartile)	28.6, 20-26-36	24.1 12-22-33	fisher	0.001

Table 4

	UDINE	TRIESTE	total	test	p
Dispatch				chi square	0.001
cardiac arrest	62	56	118		
chest pain	18	8	26		
respiratory distress	37	47	84		
lost of consciousness	47	62	109		
neurologic	13	11	24		
trauma	15	10	25		
hypoglicemia	1	4	5		
suicide	2	1	3		
unknown	4	27	31		
other	13	23	36		
Code				chi square	0.009
white	3	1	4		
green	10	14	24		
yellow	82	132	214		
red	117	102	219		
First rhythm				chi square	0.004
asystole	121	96	217		
pulseless electrical activity	54	93	147		
ventricular fibrillation	35	54	89		
ventricular tachycardia	2	4	6		
not reported	1	2	3		