An analysis of activities and medical rescue actions in patients with OHCA in the system of emergency medical services in Silesia region (Poland)

Klaudiusz Nadolny PhD^{1,2} , Jerzy Robert Ładny prof. ¹ , Robert Gałązkowski prof. ³

¹ Department Emergency Medicine, University Medical of Białystok, Poland

² Department Emergency Medical Service, University Strategic Planning of Dąbrowa Górnicza, Poland

³ Department Emergency Medical Service, University Medical of Warsaw

Materials and methods

The analysis covered dispatch orders forms and emergency medical procedure forms of the VRS in Katowice collected in 2016 (N = 249 872). The retrospective analysis involved exclusively cases of OHCA in patients over the age of 18 years. The above criteria were fulfilled in 1603 cases. The VRS in Katowice is the greatest public operator in Poland, taking care of 2.7 mln inhabitants of the Silesian province.

Results

There were 1037 male patients (64.7%), 566 female patients (35.3%). Women were generally older (p = 0.000). The average age of the group was 65.7 years. The attack rate amounted to 59.37/100 000. OHCA most often occurred in domestic conditions (71.1 %; p = 0.000), usually in the presence of a witness (about 70.0%; p= 0.000). Most of the OHCA cases were reported in the first quarter of the year SCA most frequently occurred during the day (between 07.01 a.m. and 07.00 p.m.) (n = 1013; 63.2%, p=0,000). The most frequently elements of providing patients with airway patency were intubation (51.4%) and laryngeal mask airway (n = 235, 14.7%). Respirators were used less often (20.2%).

Figure. Rhythm in cardiac arrest.

VF was reported in only 22.0% of the cases. ROSC rate was higher in the group of patients with diagnosed ventricular fibrillation than in the group of non-shockable rhythms (VF -55.43% vs. asystole- 24.05%, p = 0.000). In 1603 cases of diagnosed OHCA with cardiopulmonary resuscitation, ROSC was reported in 536 cases (33.4%).

Conclusions

However, OHCA cases are often unsuccessful. Performing actions in accordance with current knowledge leads to a higher rate of effective resuscitation in patients. Both the witness of the incident and the emergency medical dispatcher play a crucial role in OHCA cases. Performing actions in accordance with current knowledge leads to a significantly higher ROSC rate.

Table. A comparative analysis of variables (particular components of rescue procedures) and ROSC in cases of non-hospital SCA.

Variable	ROSC (n=536)	No ROSC (n=1067)	P-value*
Endotracheal intubation	318 (59.3 %)	506 (47.4 %)	0.000
Respirator	189 (35.2 %)	135 (12.7 %)	0.000
Ventilation - ventilation bag	345 (64.4 %)	604 (56.7 %)	0.003
Defibrillation	161 (30.0 %)	193 (18.0 %)	0.000
Venipuncture	514 (95.9 %)	865 (81.0%)	0.000
Total time from dispatch to arrival up to 8 minutes	314 (58.5 %)	691 (64.7 %)	0.018

Table . The results of the logistic regression

Predictors	β	OR	0.95 coefficient interval		Wal da	P- value
			low	high		
Intercept	- 1.054	0.348	0.277	0.438	82.3	0.000
Respirator (no/yes)	1.324	3.757	2.756	5.123	70.1	0.000
Oxygen therapy (no/yes)	1.639	5.151	3.280	8.088	50.7	0.000
Other activities (no/yes)	- 0.572	0.564	0.398	0.799	10.4	0.001
Monitoring/ECG (no/yes)	- 0.825	0.438	0.265	0.725	10.3	0.001
Heart massage*Age	- 0.025	0.975	0.968	0.983	43.6	0.000
Defibrillation and monitoring	0.648	1.912	1.301	2.810	10.9	0.001
Intubation and the use of oxygen	- 0.693	0.500	0.317	0.789	8.9	0.003
Venipuncture*Age	0.012	1.012	1.006	1.019	13.7	0.000
Heart massage and monitoring/ECG	1.178	3.247	1.794	5.878	15.1	0.000