Dispatcher-assisted cardiopulmonary resuscitation in patients with traumatic out-hospital cardiac arrest

Non-traumatic	OHCA	Traumatic
3966 (87.6%)	Amount (n, %)	560 (12.4%)
69.2 ± 16.6	Age (y/o, mean ± SD)	52.5 ± 19.7
63.3%	Male gender	73.5%
31.7%	Bystander CPR	10.7%
11.5%	Initial shockable rhythm	5.7%
59.4%	Compliance of dispatch protocols	14.6%
42.0%	Dispatcher-recognition rate of OHCA	6.3%
9.4%	Witness by strangers	54.4%
68.8%	Witness by family members	18.8%
Barrier to recognize		
17.1%	Callers not around patients	36.2%
3.9%	Third-party callers	11.8%
0.4%	Dangerous scenes	5.5%
Unrecognized OHCA	Traumatic OHCA	Recognized OHCA
9.0%	Bystander CPR	37.1%
23.8%	Ever ROSC	17.1%
19.2%	Sustained (≥2h) ROSC	17.1%
1.9%	Survival to discharge	2.9%
0.6%	Good neurologic outcomes	2.9%

Chien-Hsin Lu^{1,2}, Chih-Hao Lin¹, Bo-Ku Chen¹, Pin-Hui Fang¹

¹Department of Emergency Medicine, National Cheng Kung University Hospital, College of Medicine, National Cheng Kung University, Tainan, Taiwan, Tainan, Taiwan.

²Department of Emergency Medicine, National Cheng Kung University Hospital Dou-Liou Branch, Dou-Liou, Taiwan

Introduction

- Dispatcher-assisted cardiopulmonary resuscitation (DA-CPR) may increase bystander CPR and improve outcomes of non-traumatic out-hospital cardiac arrests (OHCAs). However, the practice of DA-CPR in traumatic OHCAs is not validated.

Methods and Materials

- We analyzed dispatch recordings of adult OHCAs between January 2014 and December 2016 in Tainan, Taiwan. Barriers to recognition of traumatic OHCAs were identified. Multivariable logistic regression analyses were applied to evaluate DA-CPR effects on a sustained (≥2h) return of spontaneous circulation (ROSC) in traumatic OHCAs.

Results

- A total of 4,526 OHCAs were enrolled, of whom 560 (12.4%) were traumatic. Compared to non-traumatic OHCAs, traumatic OHCAs were younger (52.5±19.7 versus 69.2±16.6, years) and more male-dominant (73.5% versus 63.3%), and had less bystander CPR rate (10.7% versus 31.7%), less initial shockable rhythms (5.7% versus 11.5%), less compliance of dispatch protocols (14.6% versus 59.4%), and less dispatcher-recognition rate of OHCA (6.3% versus 42.0%) (All

p<0.01). The witnesses of traumatic OHCAs were more likely to be strangers (54.4% versus 9.4%, p<0.01) and less family members (18.8% versus 68.6%, p<0.01). Barriers to recognition of traumatic OHCAs, comparing to non-traumatic OHCAs, included callers not around patients (36.2% versus 17.1%), third-party callers (11.8% versus 3.9%), and dangerous scenes (5.5% versus 0.4%) (All p<0.01). Traumatic OHCAs who were recognized by dispatchers, compared to those not, had more bystander CPR rate (37.1% versus 9.0%, p<0.01), but did not have statistically significant differences regarding ever ROSC (17.1% versus 23.8%), sustained (≥2h) ROSC (17.1% versus 19.2%), survival to discharge (2.9% versus 1.9%), or good neurologic outcomes (2.9% versus 0.6%) (all p>0.05). Multivariable regression analyses for a sustained ROSC in traumatic OHCAs did not find statistically significant factors.

Conclusion

- Dispatcher recognition of traumatic OHCAs was low. Compared to non-traumatic OHCAs, traumatic OHCAs have unique presentations and may require a different approach regarding DA-CPR.