A Weekend of Cardiac Incidents

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Keywords: CPR in the mountains, timings of: CPR commencement by bystanders, arrival of rescuers (helicopter), handover of patients, transfer to specialised hospital units.



11-14 November 2021

- national holiday (Independence Day, 11 November)
- the Polish section of the Tatra range welcomes numerous visitors
- the weather is fine, perhaps the last pleasant days before the advent of winter
- general conditions allow to wander pretty far and high in the mountains •



one of so-called "extended weekends", this one encompassing a Polish



"extended weekends" and fine weather lure people into the Tatras

12 November 2022

- commenced chest compressions (no ventilation),
- 14:41 helicopter crew is notified,
- **14:42** helicopter is activated, takes off promptly, •
- **14:52** rescuers are deployed on site, the first assessment is conducted



14:40 TOPR HQ is notified about a cardiac arrest in ca 50 yrs old male in the vicinity of Ciemniak peak (2096 amsl), the bystanders have immediately





at **14:52** rescuers initiate work with the patient, ventricular fibrillation (VF) is confirmed, **defibrillation** is performed

12 minutes since the HQ has been notified



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at 14:55, after defibrillation with 150 J energy, return of spontaneous circulation (ROSC) occurs



good quality chess compressions had been provided by bystanders



14:55 ROSC

- intraosseous access (i.o.) is obtained in right leg, patient is agitated (lignocainum 40 mg, fentanyl 50+50 mcg, midazolam 2 mg),
- the information about the patient's condition is transferred to HQ,
- on basis of ECG local cath lab is alerted,
- 15:15 the patient regains full consciousness,



15:15 patient fully conscious

- 15:30 the patient is winched onto the board of W3A helicopter, fully monitored, team ready for CA,
- 15:42 the patient enters
 Zakopane's Emergency
 Department
- 16:10 coronary catheterisation is commenced in Zakopane's cath lab





90 minutes from alerting TOPR to cath lab

16:10 Zakopane's cathlab procedure commences

15:30 patient on board of helicopter

15:42 handover in Zakopane's hospital

patient recovered fully



12 November 2022

- 14:56 during the cardiac arrest rescue mission another alert is received in TOPR HQ: sudden, acute chest pain in 64 y.o. male,
- second team of paramedics is picked up from TOPR HQ,
- 15:22 team arrives by the patient: ST segment elevation in ECG exam, the finding is transmitted to local cath lab,
- patient medically stabilised initially on site (i.v. access, heparin, ASA, fentanyl), • then in Zakopane's ED,
- 18:35 receives cath lab treatment





another team of rescuers is deployed to second cardiac incident

14 November 2022

- within **150 metres from previous CA**,
- the helicopter is already in air performing another rescue mission
- 11:21 rescuers are on site, VF is identified, defibrillation (150 J) follows, patient is intubated with reinforced ET, ALS is continued



11:08 TOPR HQ is notified about cardiac arrest in 50 y.o. male, location



the helicopter crew with medics onboard is rerouted to more urgent call

in site of cardiac arrest in 13 minutes

11:33 ROSC

- patient is stabilised and prepared for evacuation, i.v. access (fentanyl 100 mcg, midanium 5+5 mg, rocuronium 50 mg), the treatment is consulted with doctor via phone call,
- 11:51 the patient is winched
- 12:10 handover to ambulance on helipad in Zakopane
- 12:55 catheterisation in Zakopane's cath lab is commenced





107 mins from alerting TOPR to cath lab

12:55 Zakopane's cathlab procedure commences

11:51 patient on board of helicopter

12:10 handover on Zakopane's helipad

patient recovered fully



Conclusions

- all patients recovered fully, with no neurological deterioration,
- enabled by readiness for medically demanding operations:
 - personnel: paramedics, no doctors directly* involved in the rescues, always min. 2 medics in helicopter team, often more medics in TOPR HQ (both full time as well as volunteers),
 - **helicopter**: TOPR helicopter's role is solely rescue,
 - local ED and cath lab: located in vicinity of the mountains, what enables fast handover of patients for specialised treatment, good communication





Conclusions

- preserving good timings when critical,
- part time in local medical institutions,



• as TOPR W3A operates in non-extensive area, and is not encumbered by non-rescue missions, it is possible to use it in more than one demanding mission simultaneously, and re-route it (prioritisation) during ongoing rescue

 helicopter is staffed with at least 2 medics (most frequently paramedics), who are at the same time fully qualified mountain rescuers, they also work



TOPR paramedics are also trained in local medical institutions



TOPR paramedics in training



Conclusions

- transport of patients in severe health distress requires training and preparedness of all members of helicopter team (winch operator, nonmedics, pilots),
- number of non-traumatic
 health-related interventions
 is on the rise in the Tatras,
 thus readiness is neccessary



Conclusions

- organised rescue successes, there is noticeable improvement in to be paramount,
- not only medics,



fundamentally, good first-aid skills and BLS provision are conducive to proliferation of first-aid skills in general population, first-aid trainings seem

secondly good first aid skills are necessary for all mountain rescuers -



technicalities: ultrasound, reinforced ET, winching and chest compressions capability,

Thank you for your attention

and great many thanks to Polish Police aviation and Polish Air Force for providing us with replacement W3A for the period of TOPR W3A overhaul







