AP078

The need for quality control among ERC courses

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Purpose of the study: The Polish Resuscitation Council (PRC) was established in 2001. The number of certified courses has rapidly increased as well as the number of teaching centres. The need for quality control and regular auditing has become paramount in order to maintain a high educational level.

Materials and methods: Currently there are 62 PRC teaching centers in Poland. The number of BLS/AED courses reached 365 in 2008. Since 2005 there have been 1459 BLS/AED courses organised and 22750 BLS-AED providers trained. There are 466 instructors and 44 BLS-AED directors throughout Poland. The information providing data about course quality was received from candidates' feedback forms, feedback given by instructors and the PRC's forum. Varied activities were developed in order to improve teaching quality: course directors' workshops, instructor days, supplementary materials relevant to course work and regular auditing of courses according to Standard Operating Procedures.

Results: We found a significant discrepancy between the course centers in the way they conduct the courses. Most of them follow the ERC educational standard. Unfortunately, some centres fall short of the goals of the educational strategy of the ERC certified courses and do not deliver the full range of skills to the candidates. For the course directors, a course which falls below standard may result in the withdrawal of the course director status or participation in the course as a course co-director. Instructors may be assigned a mentor for the next course taught, their status may be withdrawn or they may need to retrain before teaching the next course and organizers may also lose their status.

Conclusions: To ensure that all candidates represent the same quality level of resuscitation, being provided by different organisers, the PRC suggests implementing audit procedures to all developing National Resuscitation Councils.

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Defibrillation

AP079

Successful use of an publicly mounted AED in the country without official public access defibrillator (PAD) program

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Purpose: Ten sudden cardiac arrests (SCA) occur every day in Slovenia. Up to six victims die immediately, more than 2000 each year. Slovenia (20,273 km^2, 2,038,733 in.) does not have national PAD program, yet.

Materials and methods: A few enthusiasts EMTs form an expert group inside Heart patients support group led by physician mentor and take over the initiative for PAD program in northern Slovenian region of Koroska in 2007 (region of 1041 km^2, 75,000 in.). This is the only PAD program in Slovenia so far and it is voluntary based. Thirty-two AEDs were included in the past 3 years. Over 1000 people attended free CPR + AED courses. Three out of ten bystanders witnessed SCA, when AED was used were successful, bystanders initiated the CPR and use AED prior to EMS arrival.

Results: (8/2009) 68 years old mail collapses near his house. Bystander initiated CPR; send someone to bring AED mounted 100 m away, called 112, one shock was delivered prior to EMS arrival, insufficient heart rhythm was established (15–20/min) which deteriorate in to VF, 2nd shock regained pulse 115/min and the patient was transported stable to the nearest hospital. Coronarography showed no occlusion.

Conclusion: The increasing number of publicly available devices is not the only key to success, but the combination with CPR + AED courses for lay rescuers which has been implemented in the region free of charge for participants. The only time people are obligated to take CPR + AED course provided by Red Cross is when they attempt the driving license course. There is no other formal possibility for people to upgrade their knowledge about new guidelines on resuscitation after that. Despite the fact that there is more than 500 AEDs sold in Slovenia, there is no successful bystander performing CPR + AED reports other than our few cases.

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AP080

Impact of a PAD project in mountain communities with and without a local first response organised system: The CATENA project

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Purpose: Evaluation of PAD (Public Access Defibrillation) project, outside the ERC recommendations,[1] in a scarsely populated mountain area (3–6 inhabit/sq. km) where a first emergency response is delayed.

Methods: We developed a response system for potential out of hospital cardiac arrest (OOH-CA) in a mountain community far from the closest emergency rooms (distance 36.4 ± 14.3 km; time 35 ± 17 min) by using two different methods of activation: 1st by mobile phone call 24 h/day in the area where a well structured mountain rescuer organization exists and 2nd by either trained inhabitants or local GPs in the villages where a first response organization does not exist. All non-professional health operators were successfully trained according to the BLSD guidelines.[2] Altogether 20 AEDs were widespread placed in accessible locations within the villages. Public conferences were held to inform the communities. In case of supposed OOH-CA event, the volunteers and the ambulance with emergency medical service personnel were simultaneously activated.

Results: 11 OOH-CA events were observed within 2001 and 2008: 5 in the first and 6 in the second area. CPR was promptly started and AEDs applied only in the area covered by an on call 24 h/day organization thus reducing the time interval between the call for help and AED activation (8 ± 2 min vs 35 ± 17 min; $P < 0.001$). Nonetheless, no patient survived. In the second area, ROSC was obtained in one patient only but he eventually died in the nearest hospital. In the villages where the volunteers were enrolled from local inhabitants, the PAD project was never activated and the EMS always arrived before the AED activation.

Conclusions: Scarcely populated areas with difficult timely access by health rescue teams may be a new recommendation for PAD projects but through an integrated local network of volunteers readily available 24 h/day.

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AP081

Comparison between biphasic quasisinusoidal and truncated waveforms in a swine model of VF

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Purpose of the study: To compare the effectiveness of biphasic quasisinusoidal (BQ – Gurvich – Venin) waveform ($5 \pm 1/6 \pm 2$ ms) and biphasic truncated exponential (BTE) waveform ($4.5 \pm 0.45/4.5 \pm 0.45$ ms) in the termination of VF.

Materials and methods: This is a controlled experimental study on piglets ($n = 14$) weighing 25.2 ± 0.73 kg. After induced anesthesia, animals were placed in a supin position, and the trachea was intubated. After intubation, piglets were ventilated with volume – controlled ventilator. VF was induced by drug administration (adrenalin 4 mg and potassium 7.5% – 5 ml intravenously). Induced VF was shocked at 40 s after onset. Two groups were compared (1. BQ waveform by defibrillator DKI – N – 02; 2. BTE waveform by defibrillator DKI – N – 15Ct Biphasic, Metekol, Ukraine).

Results: Impedans was no difference between the two groups (59.25 ± 3.7 Ohms vs 58.5 ± 4.5 Ohms). BTE waveform were more safety than BQ – injury threshold 16.7 ± 0.8 amps vs 12.24 ± 1.2 amps and energy injury threshold $50.9\,J \pm 1.5$ vs 23.2 ± 1.6 J. ROSC was achieved in 100% in both groups. Defibrillation threshold was below in BTE waveform group (12.75 ± 1.4 amps vs 21.87 ± 0.8 amps), as and energy defibrillation threshold (22.5 ± 1.7 J vs 57.5 ± 1.3 J).

Gurvich electrotherapeutical index1 (correlation between thresholds injury and defibrillation) for BTE waveform 1.30 ± 0.36 vs 0.56 ± 0.29 for BQ waveform.

Conclusion: In a swine model VF BTE waveform were more effective and safety than BQ waveform.

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