

The pathogenesis of HAPE is not only exaggerated hypoxic pulmonary hypertension, but may also involve the inflammatory response and the reduction of glucocorticoid release. We fully agree that the diagnosis and definition of HAPE require very strict criteria. In the present study, HAPE was diagnosed based on clinical symptoms and chest radiograph. All patients experienced illness within 3 to 5 days after arrival from low altitude to high altitude (3800 m). Blood samples were collected soon after patients were hospitalized. In the non-HAPE patients, measurements including hemoglobin, white blood cell count, oxygen saturation, and pulmonary artery pressure were collected at a hospital after they had been in Yushu for 5 to 7 days. Before travel to high altitude, all patients were healthy and had no clinical symptoms. According to our experience, the most satisfactory treatments of HAPE are field treatment using high-flow oxygen (8–12 L·min<sup>-1</sup>) or a hyperbaric chamber. At the same time, patients were given drug treatment including dexamethasone,<sup>5</sup> nifedipine/Regitin,<sup>6</sup> and furosemide. Clinical observations of heart rate, blood pressure, respiratory rate, and body temperature were periodically recorded. After treatment using these methods, all patients improved significantly within 24 hours and continued treatment in the hospital using Tibetan herbs, such as *Rhodiola rosea*,<sup>7</sup> ginkgo leaf tablets, and echinacoside<sup>8</sup> until complete recovery.

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## References

1. Sikri G, Bhattachar S. In response to HMOX1 microsatellite polymorphism by Cao et al. *Wilderness Environ Med* 2018;29(2):278.
2. Cao XF, Ma L, Ma S, Xu J, Ge RL. HMOX1 promoter microsatellite polymorphism is not associated with high altitude pulmonary edema in Han Chinese. *Wilderness Environ Med*. 2017;28(1):17–22.
3. Yu-jing S, Ming-wu F, Wen-quan N, Guang-ping L, Jing-liang L, Shou-quan D, et al. Endothelial nitric oxide synthase gene polymorphisms associated with susceptibility to high altitude pulmonary edema in Chinese railway construction workers at Qinghai-Tibet over 4 500 meters above sea level. *Chin Med Sci J*. 2010;25(4):215–21.
4. Luo Y, Gao W, Chen Y, Liu F, Gao Y. Rare mitochondrial DNA polymorphisms are associated with high altitude pulmonary edema (HAPE) susceptibility in Han Chinese. *Wilderness Environ Med*. 2012;23(2):128–32.
5. Nussbaumer-Ochsner Y, Schuepfer N, Ursprung J, Siebenmann C, Maggiorini M, Bloch KE. Sleep and breathing in high altitude pulmonary edema susceptible subjects at 4,559 meters. *Sleep*. 2012;35(10):1413–21.
6. Hackett PH, Roach RC, Hartig GS, Greene ER, Levine BD. The effect of vasodilators on pulmonary hemodynamics in high altitude pulmonary edema: a comparison. *Int J Sports Med*. 1992;13(suppl 1):S68–71.
7. Huang X, Zou L, Yu X, Chen M, Guo R, Cai H, et al. Salidroside attenuates chronic hypoxia-induced pulmonary hypertension via adenosine A2a receptor related mitochondria-dependent apoptosis pathway. *J Mol Cell Cardiol*. 2015;82:153–66.
8. Gai XY, Tang F, Ma J, Zeng KW, Wang SL, Wang YP, et al. Antiproliferative effect of echinacoside on rat pulmonary artery smooth muscle cells under hypoxia. *J Pharmacol Sci*. 2014;126(2):155–63.

## Is the Water Rescue Service in Poland Heading in the Right Direction? Preparing Lifeguards to the Standards of First Aid in Europe



To the Editor:

Drowning is one of the leading causes of death among children under the age of 15 years.<sup>1</sup> The role of a lifeguard is to save people from drowning and to perform first aid<sup>2</sup> where necessary. Resuscitation methods and lifesaving techniques have changed and developed over the years, as knowledge expands and technology advances.<sup>3</sup> In Poland, however, changes in the law and a lack of regulation has seen the quality of lifeguards deteriorate.

In 2009, the voluntary water rescue service introduced a new division of rescue degrees: voluntary and professional degrees. The preparatory course for the junior lifesaver examination gave training in basic first aid skills, basic life support (BLS), and how to use the automated external defibrillator. The preparatory course for the lifesaver examination also taught basic resuscitation in simulated classes using standardized patients. Both these degrees were voluntary degrees. A candidate wanting to start a professional course to become a lifeguard (pool lifeguard, inland open water lifeguard, or surf lifeguard) not only had to have completed the volunteer lifesaver degree, but also had to hold the title of “rescuer,” having completed the qualified first aid course (QFAC), which is an advanced first aid course using the R1 first aid kit.<sup>4</sup> The QFAC was a separate course, with classes being held in the practice room only and not in the water. The R1 rescue kit includes equipment for cardiopulmonary resuscitation, dressings,

and disinfectants.<sup>5</sup> The voluntary water rescue service also organized specialized training, including lifesaving in fast-moving waters, ice rescue, and jet ski training.

On January 1, 2012, the Polish Act on the Safety of Persons in Bodies of Water came into effect. This act of the parliament introduced new changes to the water rescue system in Poland. The previous requirements for qualifying as a professional lifeguard (as mentioned) were expanded under the new law, and 4 conditions had to be met: 1) qualification as a lifeguard, under a new qualification set out in the act, without BLS or first aid training; 2) possession of another qualification that would be useful in water rescue (eg, being a qualified motorboat helmsman); 3) having completed the QFAC; and 4) having experience as a member of a water rescue system.<sup>6</sup> The previous degrees in water rescue service in Poland were abolished, and existing qualifications were converted into the internal degrees of the voluntary water rescue service. In addition, after 50 years, this organization lost its control over lifeguard training. In the years since the new act came into force, over 100 organizations have been created to carry out such training. The training institutions are not properly regulated, and both equipment and instructors can be substandard. Some seem to be geared solely toward commercial activities, deteriorating the quality of lifeguard training, which used to be at a high level in Poland. An example is found in supervised swimming areas on coastal beaches, where managers do not want to hire professional lifeguards (trained under the new system) because they are not trained sufficiently to pass the examination and work in real-environment situations such as coastal beaches. This results in a lack of lifeguards at bathing sites of this type.<sup>7-9</sup>

To compare Polish lifeguard training to equivalents around Europe, it is useful to look at the International Life Saving Federation (ILS), which brings together national rescue organizations, including the Deutsche Lebens-Rettungs-Gesellschaft in Germany, the Royal Life Saving Society of the United Kingdom, and the Dutch Reddingsbrigade Nederland.<sup>10</sup> When comparing the preparation and skills of lifeguards in Poland with their counterparts in Europe, it should be noted that the Polish system functioning before the 2012 changes was the same as in the other countries. In Poland, however, changes in the qualifications and training of lifeguards in recent years have been significant. Comparing the current ILS training system and the Polish one in terms of preparation for first aid, it is important to note that Polish lifeguards are well trained after completing the QFAC—probably better than lifeguards from other member organizations of ILS. However, the 3-year

period between recertification is too long, and resuscitation of a person out of the water is rare in a lifeguard's practice. Thus, there is a lack of a refresher course (eg, after 1 year) or some other mandatory form of training, as in ILS courses.

The 2009 introduction of the compulsory QFAC for lifeguards has increased the quality of their resuscitation abilities. There was no such advanced first aid training earlier in Poland. However, there should be mandatory refresher training in the area of qualified first aid at least once a year, not every 3 years. BLS should be introduced into the training program at the start of the professional lifeguard course, as it was before 2012. This will result in a quick acquisition of BLS skills in conjunction with the specific nature of rescue operations in an aquatic environment. During the QFAC, there is no possibility of having practical training in the water. Thought should also be given to the idea of introducing at least 1 more degree (senior lifeguard) in the system of professional training of lifeguards. In addition, reducing the number of organizations entitled to train professional lifeguards and developing a system to monitor and regulate the quality of training would go a long way toward improving standards.

Financial/Material Support: The study was performed as part of the project "Centre for Innovative Research in Medical and Natural Sciences" carried out by the University of Rzeszow, cofinanced under the Regional Operational Programme for the Podkarpackie Province for 2007 to 2013 (contract number UDA-RPPK.01.03.00-18-004/12-00).

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## References

1. Peden MM, McGee K. The epidemiology of drowning world-wide. *Int J Inj Contr Saf Promot.* 2003;10(4):195-9.
2. Abelairas-Gómez C, Gómez-González C, Barcala-Furelos R, Rodríguez-Núñez A. First aid protocols for lifeguards. What should equipment be there in a portable emergency bag? *Am J Med.* 2017;35(11):1774-5.
3. Rzońca P, Chrzanowska-Wąsik M, Goniewicz M, Bednarz K, Nowicki G. History of life support. *J Educ Health Sport.* 2017;7(3):300-8.
4. The Chairman of the Water Volunteer Search and Rescue decision no. 21/10 from December 29, 2010 in the matter of programmes of preparing courses to the exams for rescuers and instructors degrees. (Decyzja nr 21/10 Prezesa

- Wodnego Ochotniczego Pogotowia Ratunkowego z dnia 29 grudnia 2010 roku w sprawie programów kursów przygotowujących do egzaminów na stopnie ratowników i instruktorów [in Polish].
5. Kevisport. Equipment of the R1 first aid kit. Available at: [https://kevisport.pl/cennik/cennik\\_produkty.php?id=1180](https://kevisport.pl/cennik/cennik_produkty.php?id=1180). Accessed November 19, 2017.
  6. Safety of persons being on water areas act from August 18, 2011. Consolidated text. Journal of Laws of the Republic of Poland 2016, item 656 with changes. Warsaw 2016. (Ustawa z dnia 18 sierpnia 2011 r. o bezpieczeństwie osób przebywających na obszarach wodnych. Tekst jednolity. Dziennik Ustaw RP 2016 poz. 656 ze zmianami, Warszawa 2016 [in Polish]).
  7. Michniewicz R, Michniewicz I. Analysis of selected problematic laws in water rescue. In: Napierała M, Skaliy A, Żukow W, eds. *State, Prospects and Development of Rescue, Physical Culture and Sports in the XXI Century* Bydgoszcz: University of Economy WSG; 2013:18–29.
  8. Wiesner W, Kowalewski B. The characteristics of entities responsible for water rescue services in Poland. In: Napierała M, Skaliy A, eds. *State, Prospects and Development of Rescue, Physical Culture and Sports in the XXI Century* Bydgoszcz: University of Economy WSG; 2015:7–19.
  9. Gicewicz S. Letter Ref. 765/W/17 from the President of the Main Board of the Water Voluntary Ambulance Service to the Ombudsman and the President of the Supreme Audit Office of September 11, 2017 on the current state of water rescue in Poland. Available at: [http://zgwopr.eu/index.php?option=com\\_content&view=article&id=226:przeciwni-nie-logice](http://zgwopr.eu/index.php?option=com_content&view=article&id=226:przeciwni-nie-logice). Accessed January 5, 2018.
  10. The ILS Federation of Europe website. Available at: [http://www.ilsf.org/about/addresses?field\\_membership\\_status\\_value=0&=Apply](http://www.ilsf.org/about/addresses?field_membership_status_value=0&=Apply). Accessed April 26, 2017.