EDITORIAL

GJMS Volume 1 | Issue 1 Sept - Dec 2021

Resuscitation Medicine in Undergraduate Curriculum

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A fresh medical graduate posted as an intern in wards has the biggest fear of any patient needing cardiopulmonary resuscitation during his duty hours. He had listened to lectures on cardiopulmonary resuscitation (CPR) in his final year medicine posting, witnessed his seniors performing chest compressions, and also participated by doing some errand jobs (making phone calls, calling nurse, loading drugs) but he is always worried to face a similar situation all by himself as a first responder. The simulation course in CPR which is available under the newer guidelines of the National Medical Council (NMC) undergraduate curriculum is a group activity and it is very much possible that few students get left out in understanding the nuances of good CPR practice.

Resuscitation medicine (RM) is a rapidly evolving area that crosses the boundaries of emergency medicine, intensive care medicine, anaesthesia, and acute medicine.[1] It is the process of correcting physiological disturbances (such as lack of breathing or heartbeat) in an acutely ill patient. Resuscitation entails more than just guidelines, training centres, and public training. The clinical practice of resuscitation, whether in-hospital or out-of-hospital, has taken on a seriousness that concerns the quality of practice, speed of implementation, and an increasing realization that every one of our patients deserves only the best skill we can offer. It has evolved from the practice of barbaric methods of yelling, slapping, hanging of the victim in face-down condition, etc to the discovery of external chest compressions by William Harvey in 1628.[2] The most important contribution to the field of resuscitation medicine was given by an electrical engineer William Kouwenhoven (1886–1975) by rediscovering the science of external cardiac compression by accident during his research on internal and external defibrillation. No doubt that he is remembered as the founder of modern CPR.[2] Many pharmacological and device technologies were developed thereafter and integrated into resuscitation protocols, such as the use of epinephrine, calcium, lidocaine, sodium bicarbonate, defibrillation waveforms, and improved electrocardiographic monitoring.

More recently, therapeutic hypothermia (TH) in which the body is cooled to between 33 and 36 °C in an effort to decrease the metabolic injury due to ischemia, emergency use of extracorporeal membrane oxygenation (ECMO) in which a pulseless person is rapidly placed on a fully artificial heart and lung machine and controlled reperfusion in which the patient receives pulsatile blood flow rather than a continuous flow to better mimic normal physiology have emerged.[3] These therapeutic interventions require the earliest possible recognition of cardiac arrest with the initiation of basic protocols during the initial 3-4 minutes and decision planning for indications and contraindications of advanced techniques. The science of RM is highly subjected to the time taken to address the situation which further makes it compulsory that the education and training should be blended in the curriculum during growing years as a medical student.

The first-year students while studying anatomy, physiology and biochemistry should learn about the electrical and circulatory phase of cardiac arrest, the various adverse biochemical reactions associated with arrest, and the anatomy related to efficient chest compressions and basic airway support. The progress of the student's curriculum into pharmacology, microbiology, pathology, ophthalmology and ENT should simultaneously expose him to the pharmacology of drugs used in resuscitation, pathophysiology and molecular aspects of cardiac arrest, assessment of eye signs for brain dead patients, and the advanced airway management. During the final semesters, education should include the current protocols of CPR and defibrillation. In this way, we can achieve a trained medical graduate well versed with basic tenets of knowledge in resuscitation. The period of internship should expose him to learn advanced protocols of quality management, real-life limitations occasioned by

Cite this article as: Sharma A. Resuscitation Medicine in Undergraduate Curriculum. Global Journal of Medical Students. 2021;1(1):2–3.

Submitted 17-08-2021 Accepted 24-08-2021 Published 28-12-2021

Access this Article Online

Scan this QR Code

https://doi.org/10.52314/gjms.2021.v1i1.14

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adverse environmental and practice settings (e.g. while moving the patient, in an ambulance, or space-constrained settings), and human factors (such as rescuer fatigue and physical limitations).

The future of resuscitation medicine is in the development of interventions like brain-specific drug cocktails that can be used to improve neurological outcomes and redefine the current definition of death. Antioxidants, metabolic substrates, vitamins and cofactors, temperature regulators, mitochondrial membrane stabilizers, endothelial stabilizers, restoration of ionic gradients, anti-infectious agents, and inflammation reducers are the interventions that need to be studied in Indian scenarios for a potential benefit.[4]

In 1997, Safar et al had published a review on life in the balance and the quest to reverse sudden death. He had pointed out that resuscitation medicine is more than emergency cardiac care.[5] Twenty - five years later, we are still struggling to train every doctor for the same. We should work as a team to incorporate structured and supervised training for our younger doctors. This will enable them to perform reasonably well and stay confident during the cardiac arrest scenarios. I would end my talk with the famous quote by Andrew Lockey et al released on World Restart a Heart Day 2020 that had inspired many doctors to learn RM - *Two hands can save a life.*

END NOTE

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Conflict of Interest: None declared

REFERENCES

1. Resuscitation. In: Wikipedia [Internet]. 2019 [cited 2021 Dec 3].
2. Shoaib M, Becker LB. A walk through the progression of resuscitation medicine. Ann N Y Acad Sci. 2020 Oct 10
3. Anantharaman V. Resuscitation medicine: a dose or two for everyone. Singapore Med J. 2017 Jul;58(7):345–6.
4. Liss HP. A history of resuscitation. Ann Emerg Med. 1986 Jan;15(1):65–72.
5. Lockey A, Boettiger B. "Two Hands Can Save a Life." International Journal of First Aid Education. 2020 Sep 2;3(2):1–2.