Response to Comments

Indian resuscitation council cardiopulmonary resuscitation guidelines: The way ahead!

Sir,

We appreciate the concerns raised by Pahade *et al*. about the Indian Resuscitation Council (IRC) cardiopulmonary resuscitation (CPR) guidelines, their critical analysis of the guidelines and the suggestions for implementation.[1] A number of professional societies of India have formulated CPR guidelines in the past. However, these guidelines did not receive universal acceptance as they were not promulgated nor published in a peer-reviewed journal. The need to develop CPR guidelines, suited to India, was appreciated by the Indian Society of Anaesthesiologists (ISA) and these guidelines were formulated keeping the socio-economic and cultural environment of the country in mind.[2-5] The guidelines were thereafter published in this esteemed journal after peer review by experts in the field.

The IRC recognises that the successful universal implementation is a herculean task and involves training a large number of instructors. For any new venture to succeed, one requires the support and dedication of a team and so would be the case for the new IRC guidelines. It is the responsibility of every member of ISA to be a part of this novel venture and help propagate these guidelines. The IRC has drawn out an implementation programme and the same is available on its website (www.cprindia.in).

The authors have referred to the American College of Cardiology/American Heart Association (ACC/AHA) guidelines as 'gold standard'.[6] We would like to state that there is no 'gold standard' CPR guideline, as guidelines are continuously evolving. A number of resuscitation councils across the world have framed their own guidelines suited to the population they serve.[7,8] A number of countries have adopted other guidelines in absence of their own guidelines. No guideline can be suited to all and the same applies to the ACC/AHA guidelines in India. Moreover, there are cost implications in conducting some of the internationally available CPR courses.

Despite existing international guidelines, the teaching and training in CPR in India is wanting. Our country has its limitation and guidelines, thus need to be framed considering factors such as availability of training facilities, infrastructural resources, financial limitations, geographical diversity, and facilities available to majority of the population. The guidelines formulated need to be practically applicable throughout the country and have not restricted application to specific areas. Indian guidelines would help bridge these gaps and provide opportunities to learn.

The IRC guidelines are evidence-based; however, the evidence is not from publications from India. We expect studies to be conducted based on the new guidelines and the outcome data from them will help the IRC update these guidelines. The IRC plans to form a registry to collect Indian data and use it for future revision of the CPR guidelines.

The chest compression, as the only CPR, is well accepted worldwide. The IRC guideline does not intend to deny our population of the benefits of defibrillation nor does it discourage the use of defibrillation in victims of cardiac arrest. Automated external defibrillators (AEDs) are not readily available in most parts of the country. Hence, we have added the layer of COLS for laypersons who are unlikely to have access to AEDs and who will call for help and provide effective chest compressions, until personnel trained in Basic Cardiopulmonary Life Support (BCLS) arrive. BCLS training does include AED use and breathing support, even outside the hospital.

It is paramount to recognise the concept of skill retention and skill attrition. Inclusion of multiple skills for each stratum is a major challenge. The addition of new devices for breathing and defibrillation can be done, based on their availability, in later editions of the guidelines. There is no restriction on imparting higher level of training to people in certain areas based on availability, educational standard, and infrastructure. Personnel working in metros and airports are usually well trained and they may be involved in further training, which may include BCLS.

Naloxone is not freely available in most parts of our country and including it in the guidelines was thus not considered. Hypoxia has been referred to as a reversible causes and its suitable management is desirable. This subset of victims can be managed by medics and paramedics, both outside the hospital and inside the hospital settings, by following BCLS or Comprehensive Cardiopulmonary Life Support,

and rescue breaths can be administered as per the guideline. In addition, the inclusion of naloxone in the AHA guidelines largely relates to opioid epidemic in America. We have no data to suggest that an opioid problem of this magnitude exists in India, and just like the AHA guidelines in their previous editions, we did not include opioid-induced respiratory depression in our guidelines.[9,10]

We also appreciate the concerns and appreciation by Gangakhedkar in another letter related to CPR Indian guidelines.[11] We emphasize the importance of high quality chest compression as an important component by layperson CPR. A huge response has been observed for creating awareness and teaching COLS to layperson in India. The components of high quality chest compression have been emphasized in the published guideline.[2] It is imperative to minimize interruptions on one hand but also to switch over rescuer after 5 cycles of 30 chest compressions. We do agree to prevent any further injury to cervical spine in case of suspected cervical spine injury of the unconscious patient.

Training in resuscitation involves following a structured CPR course to impart appropriate knowledge and develop skills. The IRC guidelines aim to improve survival of cardiac arrest victims by providing a platform for such a structured training. Compulsory CPR training, by professional bodies, has unfortunately not been made mandatory by any Indian accreditation or government agency and there is a need to recommend the same.

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There are no conflicts of interest.

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