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Opinion

Basic and Advanced Life Support for Children: A-B-C or C-A-B

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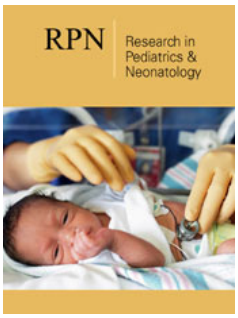

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Opinion

The International Liaison Committee on Resuscitation (ILCOR) till date has no clear consensus regarding sequence of Cardiopulmonary resuscitation (CPR) of pediatric patients [1]. In adults, cardiopulmonary arrest is usually due to cardiac cause where after arrest blood oxygen levels are maintained during initial few minutes and hence, chest compression are of critical importance to resume blood flow to vital organs [2]. Therefore, adult Basic Life Support (BLS) follows Circulation, airway and breathing sequence (C-A-B) emphasizing more on timely provision of high-quality chest compressions than on complex interplay of rescue breaths and chest compressions. Moreover, the previous resuscitation sequence of A-B-C (airway, breathing, circulation) was replaced with C-A-B in 2010 as provision of cardiac compression is much easier than maintaining airway and initiating ventilation. This prevents delay in effective bystander CPR provided during out-of-hospital cardiopulmonary arrest [1,2]. The American Heart Association (AHA) recommends same sequence of CPR in adult and pediatric (other than newborns) patients to avoid confusion. The Pediatric Task Force realized importance of uniformity of CPR guidelines, but on other hand did not support C-A-B sequence due to the fact that in children asphyxia is major reason of cardiopulmonary arrest making ventilation most essential part of pediatric CPR [1]. The guidelines updated by ILCOR in 2015 again suggested C-A-B over A-B-C expressing need to further collect evidence in this regard. It is of utmost importance that individual resuscitation councils were given authority to decide over decision regarding pediatric CPR meaning that A-B-C might be recommended in children since majority of pediatric arrests are due to hypoxia . Contrary to the AHA the European Resuscitation Council (ERC) advocates the provision of five initial rescue breaths before starting chest compressions. Especially A-B-C sequence be followed by health professionals dealing pediatric patients [3]. In simulated pediatric arrest, the ERC approach improved alveolar ventilation volume somewhat compromising on chest compression fractions. Improving alveolar ventilation leads to improved CO2 clearance as well increased partial pressures of alveolar Oxygen and tissue oxygenation [4]..

Worldwide, it is essential for pediatric residents to obtain certification in BLS whereas AHA introduced certification in Pediatric Advanced Life Support (PALS) in 1988 and since then it is mandatory for pediatric residents to obtain this certification at beginning of residency and renew every 2 years. Through the PALS course, trainees gain skills of basic life support and pediatric assessment that enables them to handle critically sick children [5]. I have been supervising post-graduate pediatric trainees and teaching BLS and pediatric advanced life support for last many years. The University of Child health Sciences, Lahore, developed a team to design BLS and advanced pediatric life support course for pediatric residents with intent to not only improve survival but also prevent pediatric cardiac arrest. While designing these courses, I realized that as these courses are specific and mandatory for post-graduate

pediatric residents, the logic of AHA to have uniformity of CPR guidelines might not make sense when teaching BLS and PALS to pediatric residents for purpose of dealing in-hospital pediatric cardiac arrest where cause is usually hypoxia.

In my opinion, as there is already established consensus over following A-B-C sequence during newborn resuscitation, it is better to follow same sequence while teaching mandatory BLS and PALS courses to pediatric residents. There must be uniformity among CPR sequence learned by pediatric residents as child's anatomy and physiology is much different from adults. Being a medical educationist, I strongly support the idea that teaching of pediatric resident will be more relevant if we follow ERC guidelines regarding pediatric CPR.

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