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ACLS versus BLS: When is Less More?

ACLS VERSUS BLS: WHEN IS LESS MORE?

When is less more? When should your EMS Unit be transporting and not treating? You are listening to ReachMD, The Channel for Medical Professionals. Welcome to the Clinician's Roundtable. I am Dr. Shira Johnson your host and with me today is Dr. Marianne Gausche-Hill, Professor of Medicine at David Geffen School of Medicine at UCLA and Director of EMS and Pediatric Emergency Medicine Fellowship at Harbor-UCLA Medical Center. Dr. Gausche-Hill is nationally known for her work as an EMS researcher and educator and for her leadership in the field of Pediatric Emergency Medicine and pre-hospital care. She has won too many awards for us to mention here, but most recently in 2008, she was awarded a Heroes Award for Achievement by the American College of Emergency Physician and that kind of says everything. We are discussing ACLS versus BLS or when your EMS should scoop and run and when they should stay and treat.

DR. SHIRA JOHNSON:

Welcome Dr. Gausche-Hill.

DR. MARIANNE GAUSCHE-HILL:

Thank you very much.

DR. SHIRA JOHNSON:

You know Marianne you are nationally renowned leader in EMS and Emergency Medicine, tell us a little bit more about your background what inspired you and how did you get here?

DR. MARIANNE GAUSCHE-HILL:

Well, I started out actually interested in surgery and when I came to Harbor-UCLA Family Medical Center, which is a public hospital really saw primary care and the needs of the public in terms of emergency medicine. I spend a lot of time in the emergency department and then became interested in the emergency medicine so that is kind of how it all began and probably an interval component obviously to emergency care is the delivery of patients to the emergency department by prehospital care providers, and so I started out very interested in that and when I finished my emergency medicine residency, I was a fellow on one of the first four emergency medical

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services for children, centrally funded grants here in California and the PI on that was James Seidel and from there I started getting interested in asking questions about prehospital care of children and so I think that pretty much sparked all my interest in research, interest in emergency medical services for children and emergency medical services in general.

DR. SHIRA JOHNSON:

You know, and it all starts with us as physicians asking questions. So why would anyone call into question the need for ACLS in the field, how that even arise?

DR. MARIANNE GAUSCHE-HILL:

I think that the separation between ALS and BLS scope is somewhat artificial I think. We had to decide what is a basic skill and what is an advanced skill and generally advanced skills are certainly going to require things like medication delivery and more advanced invasive skills that one would perceive would require greater training. So I think that the original separation terms of scope was pretty much decided on based on common sense and not necessarily on what works and what does not work. Certainly every system is going to have BLS or basic life-support skills and then the question is did the advanced skills add anything in terms of outcomes and I think when EMS System began it was based on a number of things obviously survival and what is done in the hospital and also some of the military database what happens on the battlefields. So you know rapid delivery of patients from the field to the definitive care and trauma situations improved outcome and a battlefield setting. Would that occur on the highway, nobody knew, but it was a pretty good guess. So I think that this is where some of this came into question, unfortunately we have had very little research relative to what improved outcomes of people care about such as survival or neurologic or functional status and I think what we are seeing now is we are seeing a maturation of our EMS Systems to include high quality of research.

DR. SHIRA JOHNSON:

In ACEP in Chicago you spoke about OPALS and now you tell our listeners a little about that. Do you know anything about the background in Ontario, what was going on prior to doing this research, was is it just looking for evidence based medicine as you mentioned to challenge where we can do anything?

DR. MARIANNE GAUSCHE-HILL:

Yes. They also wanted a cost benefit analysis. If you are going to spend a lot of money training. It costs millions of dollars to train ACLS providers, what you are going to get for that, is there a benefit to the public for such services, and really that's a very important questions and I am sure the public is interested in that type of thing, you know, what is being spent and does is it really matter, and I think that's in a sense how it all got started and they are initially supported by the emergency health services branch of the Ontario Ministry of Health and Dr. Stiell is an amazing career scientist that has been working at the Medical Research Counsel of Canada and so he was charged with how do we investigate whether the addition of ALS Services is going to be cost effective with the outcomes being meaningful to the patient's meaning improved survival and those kind of things. So I think that is how I got started. You know if we are going to fund these systems and do they work.

DR. SHIRA JOHNSON:

For those you have just tuning in, you are listening to ReachMD, The Channel for Medical Professionals. I am Dr. Shira Johnson and I am speaking today with Dr. Marianne Gausche-Hill from Harbor-UCLA, and we are discussing new research in EMS, when to scoop and

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run and when to stay and treat.

Can you define for our listeners a little bit what the OPALS study is that we are talking about and what was there underlining hypothesis?

DR. MARIANNE GAUSCHE-HILL:

This is the largest prehospital study to date. It involved more than 25,000 patients over an 8-year period. Look at where I would say what OPALS stands for besides a semiprecious stone. OPALS stand for the Ontario Prehospital Advanced Life Support study and really the purpose of that was to evaluate the incremental benefit of rapid defibrillation and prehospital advanced cardiac life support for cardiac arrest survival and really then the benefit of ALS for those patients as well as for patients with traumatic injuries and really other critically ill prehospital patients that was the overall global purpose of the project.

DR. SHIRA JOHNSON:

What I would like to get into is the work that was done in Ontario with the EMS Services. They looked at several areas. Lets talk first about their work in trauma and what did they look at and what were the results of that study?

DR. MARIANNE GAUSCHE-HILL:

The question was and it is fairly an elegant question because it is very simple. The most elegant questions are often simply put, but what they wanted to know is what is the incremental benefit in major trauma survival that could be expected when an advanced life-support services are provided and the concept was, you know, they had approximately 20 different communities that had the chore, meaning went around for a long time basic life-support services and they wanted to find out that if we train these basic providers to an advanced level does that improve survival for patients who suffer significant trauma and so there were 17 cities that participated and as many people may know that major trauma is the second most important condition for children and fourth most for adult treated by EMS in Canada. The mortality is about 20% overall, and what they looked at are adult trauma patients 16 years of age or older and they had major injuries. There are something called an injury severity score, which is a way to kind of compare between the severity injury and these everybody would consider greater than 12 that is for the score to be a major trauma patient, meaning there is multiple injuries that could result in mortality and when they wanted to look at was there an effect of introducing ALS, which the ALS provider can do things like endotracheal intubation, which is an advanced skill, which involves you know placing a plastic tube in the throat and then in order to provide respiration versus BLS and that is basically placing a mask as everyone knows is mask ventilation and the question to that matter. In addition, the ALS providers would have additional training for assessment and they could also place an IV line to venous line and give fluids. So the question was does it matter. The bottom line is that they found that in terms of survival, which is what you know we care about in terms of the public. There was no difference to the survival by the addition of ALS Services, meaning there was no improved survival by advanced life-support, although basic life-support. In addition, they wanted to look at okay if you did survive were you more functionally independent, if you were cared for by an advanced life-support provider and they looked at that and discharge and in 6 months and there was no difference between BLS and ALS in that setting; and finally, they had an opportunity to look a little further because there has been questions about head injured patients and use of intubation in that particular subset of patients. And what they found is that the use of ALS so the advanced life-support provider increased mortality in patients who initially had a Glasgow coma scale, which is a scale looking at the severity of head injury less than 9. So these are all moderate-to-severe head injured patients. So the use of ALS Services actually decreased survival in that particular subset of patients.

DR. SHIRA JOHNSON:

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Now, of course, this gives rise to a whole host of questions, and one of them how did they eliminate other confounders like the care received in the ER for example or the time to the OR or other factors?

DR. MARIANNE GAUSCHE-HILL:

The fact that we had a study that was performed after all the patient's got treated the same across the system and so they could control for things such as injuries severity, type of injuries that occurred and since this occurred across an entire system is a population-based sample. So whatever factors affected say the BLS group could also affect the ALS group and there would be no real consideration that there would be geographic differences because it occurred across the entire geographic area.

DR. SHIRA JOHNSON:

The outcome so kind of surprises me, what is your comment on it? How do you view it?

DR. MARIANNE GAUSCHE-HILL:

Let me just tell you a couple of things; one is when you are in ALS provider you tend to wanting to use ALS scales. Okay now obviously want to measure when the need to use those ALS scales, but you tend to want to use the scale so the patient that would qualify for intubation they would probably make those attempts. We do know that multiple attempts can lead to hypoxic insult. We do know that hypoxia is very bad in terms of survival for patients with head injury and that has been shown in a number of systems and probably the one most recently was in San Diego where they showed intubating head injured patients led to not only significant hypoxia, but increased mortality and so I believe that in that particular subset of patients the attempting intubation, which results from fortunately it is just the way it is and a hypoxic insult may decrease survivals.

DR. SHIRA JOHNSON:

I would encounter with you can be hypoxic from the intubation attempt or you could be hypoxic from <_____> transient in summary not providing an adequate airway as well.

DR. MARIANNE GAUSCHE-HILL:

Absolutely, you know I think you have a good point. The bottom line is that we should not shoulder on another people who have shown in adult patients that providing oxygenation ventilation with bag-mask can be as effective and certainly what is needed as a baseline and that the intubation can result in additional complications. The other thing that can happen is that the time it takes to perform area of skills in the field, although you know, the people who have tried to measure those and will say, well, 0.2 minute for those and a minute for that. Those extra minutes can be meaningful when you are looking at either hypoxia or hypertension, especially in injury-sensitized brain.

DR. SHIRA JOHNSON:

So you know it certainly opens a door for whole host of questions and unfortunately we are almost at a time, but what take-home points would you have for our listeners today regarding this data the odd for EMS Services responding to trauma in the field aside from

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obviously more studies are called for, but is there is anything else you would say as a take-home point.

DR. MARIANNE GAUSCHE-HILL:

The take home point is good assessment skills, great bag-mask skills are going to be key and I think in many systems it has been de-emphasized with the additional of more advanced skills, but to be honest the every EMS provider in the country should be skilled in the performance of bag-mask ventilation. I feel very strongly about that. In addition, good assessment skills getting them from point A to point B needing rapid definitive care, I think it has been shown in many systems a definitive care being a trauma center for most of these patients, who are major trauma patient, is really key. So evaluation extrication getting them out assessing them deciding when bag mask is needed and then being able to perform that appropriately and skillfully is going to save life.

DR. SHIRA JOHNSON:

Thank you for being our guest today.

DR. MARIANNE GAUSCHE-HILL:

Thank you so much. I enjoy being on this program.

DR. SHIRA JOHNSON:

Our thank goes to Dr. Marianne Gausche-Hill, who has been our guest today. We have been discussing EMS treatment when is doing less in the field really more, and I am Dr. Shira Johnson. You have been listening to the Clinician's Roundtable from ReachMD, The Channel for Medical Professionals. Please visit our web site at www.reachmd.com, which features our entire library to on-demand podcast or call us toll free with your comments and suggestions at 888-639-6157. Thank you for listening.

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