

Cardiac arrest in the young: rare but possible

It can be hard to believe that someone young and active may be at risk from heart problems, but each week in the UK at least 12 apparently fit and healthy young people die from undiagnosed heart conditions. Cardiac Risk in the Young (CRY) is a charity that works to support families affected by the sudden cardiac death of a young person, to help young people who have been diagnosed with life threatening heart conditions and to reduce the number of tragedies that occur. 2010 marked the 15th anniversary year of CRY. Here, Gareth Mallon, a community paramedic and developing tutor for the East Midlands Ambulance Service (EMAS), discusses his personal involvement with the charity in more detail. Email for correspondence: paragaz@gmail.com

Young people do not have cardiac chest pains, it is just a panic attack, drink or drugs, attention seeking, or trying to get out of sports—this is what we usually believe when we get a 999 call to any teenager who calls because of chest pains or a collapse or faint.

We are led to believe that young people and babies have not yet begun to damage their heart with smoking, long-term alcohol use or general lifestyle abuse. Their heart is under warranty and only goes wrong under extreme and unusual conditions. As a paramedic, I have to admit, this is how things are often perceived and how I used to think myself.

Time for further awareness

This is not due to ignorance but a lack of education. In training school, ambulance staff are taught to deal with many extremes of traumatic situations and medical conditions in a very short space of time. From childbirth to simple or multisystem trauma, to strokes and heart attacks, to psychiatric patients.

So, we can be midwives one minute, cardiologists next, then counsellors. Most of what we learn after training school, we do on our own merits and experiences, through necessity of your PDR or personal interest. We are taught to deal with life-threatening and non life-threatening situations with adults and paediatrics, including the dreaded cardiac arrests. We deal with death, sometimes on a daily basis, but it is the

young people who die which are the hardest for us to cope with, even for some seasoned veterans. The hardest part of this is to understand the reason behind the sudden and tragic death and many staff do not or, through self preservation and defence, choose not to.

The time has come to change and it is time to educate. The one thing I am most proud of after talking to many ambulance staff from all over

“In the UK, at least 12 apparently fit and healthy young people die from undiagnosed heart conditions each week”

the UK is that we are good at listening, researching and learning new things. We are always trying to better ourselves because when we get it right it gives us a good feeling and, as with medicine, there is always something new to learn.

The general public sometimes forget that even though we wear green or white, or whatever colour we do wear, contrary to belief, we are also human and with families that we hope are treated in the same way that we treat them. So something that educates us can also ultimately benefit our own

families and relatives.

Now first about me, I am Gareth Mallon, a community paramedic and developing tutor for the East Midlands Ambulance Service (EMAS) and I am based in Derbyshire at the Swadlincote station. EMAS is an amalgamation of six counties (Derbyshire, Nottinghamshire, Leicestershire, Lincolnshire, Northamptonshire and Rutland) and is the largest ambulance service outside London, employing over 3200 people in over 70 locations.

I work on both ambulances and response cars and I have been in the ambulance service for twenty years, 16 of those as a paramedic. I have had an interest in ECGs for many years due to a very good and informative training instructor, but most of my knowledge of ECGs has been through self education over the years.

In 2002, I had published a very basic ECG book *Let's Make the ECG Easier To Understand* (Mallon, 2002)—a sort of ABC of ECGs which has been quite successful and is still selling mainly to nurses and ambulance staff nationwide.

Through the last two years, I have learnt more through experience, education and research that young people with chest pains, shortness of breath and sudden collapses sometimes could have cardiac conditions—either known or undiagnosed. My personal turning point was a 20-year-old who presented with a myocardial infarction which was uncharted territory for me due to his age. This luckily turned out

to be myocarditis but only discovered following examination and tests at the hospital.

When I started to research the various acquired and inherent cardiac conditions, I was overwhelmed by those that I had not realized existed—from cardiomyopathies to the long QT syndrome (LQTS) and Wolff Parkinson White syndromes (WPW). I had heard of some of them such as WPW and had a basic self taught knowledge, but never really knew a great deal about what it was.

This highlighted that my level of understanding of some cardiac conditions was limited and I felt the need to know more. This led me to Alison Cox MBE at a charity organization called Cardiac Risk in the Young (CRY), which I found on www.c-r-y.org.uk.

History of CRY

CRY was founded in 1995 to raise awareness of conditions that can lead to young sudden cardiac death (YSCD), sudden death syndrome (SDS) and SADS. Its founder Alison Cox has worked tirelessly to reduce the shocking statistic that every week in the UK, 12 apparently fit and healthy young people die from undiagnosed heart conditions. These are the numbers that we do know about but the figure could actually be higher.

Some of the patrons that are associated with CRY are David Walliams, Sir Steve Redgrave, Sir Ian Botham and many other top sports personalities who feel strongly in CRY's commitment to reducing young cardiac deaths. The latest patron to join CRY is Pixie Lott who is a fantastic advocate for young people who are the target audience for the cause.

Working with the ambulance service

I am lucky that I stumbled across Alison and the staff at CRY who were, from the first phone call, extremely positive in working with and helping to educate ambulance staff. Following an initial meeting, it seemed that the ambulance service was seen as an important and



Figure 1. CRY annual parliamentary reception on October 13 2010 when the CRY DVD was officially launched. (left: Gareth Mallon; Professor Sanjay Sharma; Dr Steven Cox).

integral part of chance diagnosis and preventative measures of untangling the mystery of sudden cardiac and arrhythmic death in young people.

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DVD

We started with an idea of an educational cardiac DVD purely for ambulance staff. In the past, we have mainly had ‘hand me down’ education

or non-ambulance specific information. Therefore, the idea of this DVD was for it to be tailored and directed at ambulance staff—making it more personal and the information pitched at the right level for us. All of this was courtesy of Dr Steven Cox, Deputy Chief Executive at CRY who has patiently and painstakingly produced this DVD, despite throwing in the odd suggestion to tweak it to suit the levels of learning and understanding making sure that it is simple and visual.

The DVD has finally been released as two different versions. The first is the ambulance educational DVD in which there is a mixture of narration by the very eloquent and highly educated Professor Sanjay Sharma—who is one of the leading cardiologists in the UK and consultant cardiologist to the CRY board.

It also contains ECG examples to identify common cardiac problems, including cardiomyopathies and long QT syndromes and relevant information about sudden unexplained collapses in conjunction with the NICE transient loss of consciousness (Tloc) guidelines found on: <http://tinyurl.com/64yjcf>

The London Ambulance Service

produced a PowerPoint slide set specifically for us following my comments as a stakeholder about the lack of ambulance service representation. This is an excellent supplement to the Tloc guidelines and can also be found on: <http://tinyurl.com/66y28wt>

The ambulance DVD was so well received when reviewed and tested through various audiences and professions that another version was produced for medical students.

CRY parliamentary reception

My breakthrough with CRY was when I was invited to the annual CRY Parliamentary Reception at the House of Commons in October 2009. This was gratefully funded by EMAS. My idea was to make a presence with ambulance service representation, so I elected to wear uniform and stand out from the crowd.

The idea was not to be just a badge but to show people at the reception that EMAS in particular were taking SADS and SCD very seriously. It certainly did have the desired effect and we were made very welcome with people who took time to introduce themselves—some with some sad stories of loss of loved ones and some with success stories of resuscitation or diagnosis. Also attending were many influential MPs and dignitaries.

I wanted to know how the ambulance service could improve in either dealing with the sad situations or in early diagnosis of these potentially life-threatening conditions. As a result of the parliamentary reception, I did receive some national and local

exposure which highlighted the need for the ambulance service to review education for staff. These included articles in the local Derby Evening Telegraph and The Times newspaper.

Knowledge in action

More recently, using the education from my own learning and from the Tloc guidelines, my awareness and detective work has meant that on two occasions I have referred young patients for cardiology review via the A&E department—one being a patient currently treated for epilepsy which had all the hallmarks of a possible Tloc event and an abnormal ECG with family cardiac history. So, with a little change in the way we work, it is possible to make some discoveries that could even be life-changing.

Looking to the future

What I would like to see in the not too distant future is maybe the ability to offer the ambulance staff an elective CPD day. I want to include a training session starting with refreshing the basic ECG rhythms. I have had positive feedback with a high level of interest which is always encouraging. This planned training course is with our education department awaiting approval.

I would also like to approach the GPs and PCTs to let them know what we are intending to achieve and to discuss how they can support us with referral pathways in highlighting the introduction of the new NICE guidelines for transient loss of consciousness (Tloc) and their part to play in the global treatment of young cardiac patients.

There is also an aim to include the hospitals and other agencies in the referral pathways so that ambulance

crews can highlight concerns for them to be taken seriously.

The other goal is to work in the community with education of the sports and leisure industries and local sports groups such as football and rowing organizations on the basics of how to recognize the signs and symptoms of a potential SAD or SCD. I hope to use the media to gain some credible exposure to again highlight the issue of SAD and SCD and the involvement of the ambulance service in community education.

These are my proposed plans of action, but please forgive me, they will take some time to put into place. These are what I would like to implement but as always are subject to change. This is just to let you know that the aim of EMAS and the ambulance service nationally is to try and support ambulance staff with education and to try and prevent as many young cardiac deaths as we can.

Conclusion

I am very fortunate that my senior managers in the East Midlands Ambulance Service NHS Trust, especially the Deputy Clinical Director, Roger Watson are extremely supportive of this project. Without this continued support, I could not have got this far.

If anyone would like to know more of what I would like to achieve or has any questions (or even better, some suggestions), then please do not hesitate to contact me and I will do my best to answer them. You can also visit the CRY website on www.c-r-y.org.uk.

Mallon G (2002) *Let's Make the ECG Easier To Understand*. Media Publishing, UK

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