

Real Life Story - Gunnar Karlsson

Monday, May 24, 2004, 60-year-old Gunnar Karlsson, a medical technician with Gambro in Lund, Sweden, rose early, ate breakfast, loaded his golf clubs into the car and set out for Sweden's famous Barsebäck golf course.

"The masters' course is tough, there's no two ways about it. And, of course, my performance could have been better. But, given my lack of practice, it was passable," says Karlsson, who has a handicap of 18.7.

Gunnar is not a smoker, eats a healthy diet, and exercises often — so although he had been lying low on the golf front, he had been jogging regularly.

At the 15th hole, a par-3, Karlsson hit the best ball of the day, landing on the green three metres from the hole. He remembers nothing about this. Karlsson fell headlong to the ground, clutching the flag in one hand.

"Gunnar was wheezing. I felt for a pulse and tried to rouse him, but it didn't work. Then I started to administer chest compressions. I didn't know exactly what to do, but I had recently heard a radio interview about cardiac massage and went by that. At that point, maybe two minutes had passed since Gunnar collapsed," explains colleague Dan Jönsson.

Meanwhile, a bystander called emergency medical services.

"I could see that Gunnar was blue in the face from lack of oxygen, so I began mouth-to-mouth resuscitation." While they waited for the ambulance to arrive, Jönsson and another colleague, Johan Deimert, were given instructions by phone from the emergency operator on how to administer chest compressions.

"Gunnar took several breaths and his facial colour improved slightly," recalls Johan. Approximately 18–20 minutes after calling, the fire and rescue service arrived from Löddeköpinge and took over the task of CPR.

After a few more minutes the ambulance and mobile emergency doctor, Dr. Erik Haugaard, arrived from Lund, equipped with the LUCAS™ chest compression system. LUCAS is a compressed-air driven, mechanical chest



Gunnar Karlsson enjoying a day on the links

compression device designed to provide effective, consistent, and uninterrupted chest compressions.

Paramedic Ronny Holm immediately connected LUCAS while Karlsson was still lying on the green at the fifteenth hole.

"We had bought a little time, which is one of the main benefits of LUCAS. While LUCAS efficiently administers CPR, we have the opportunity to intervene elsewhere," explains Dr. Haugaard.

Dr. Haugaard then intubated the patient. Treatment continued with LUCAS and defibrillation at three-minute intervals, further ECGs and medication by drip. Paramedic Ronny Holm used his mobile phone to time the intervals.

"I set the stopwatch for three minutes. LUCAS for 90 seconds, then defibrillation, then LUCAS again, and so on, following a set pattern. I think we defibrillated five times at the scene," says Holm. "I was now in a position to authorize the patient's transfer to the hospital. It's a really encouraging feeling when things go this well. You remember this kind of thing – not least because there's no other gadget that does what LUCAS does."

"No human hand can deliver such effective compressions," concludes Dr. Haugaard.

REAL LIFE STORIES

Fractured ribs are the price that some patients have to pay for CPR, whether manual or mechanical, but Karlsson escaped without even this.

“When we carried Gunnar into the ambulance, he had a heartbeat, but an unstable one. So on the way in, we used LUCAS on and off,” explains Mats Ridell, adding, “Gunnar picked up more and more in the ambulance. At one point, he tried to pull the intubation tube out of his throat. When we left him in the emergency department, he was able to give his name and date of birth.”

“Once he reached the hospital, Gunnar Karlsson’s treatment proceeded without complications,” says Dr. Matz Widerström, clinical director of the emergency department in Lund.

At the hospital, cardiothoracic surgeon Per Paulsson was called. X-Rays showed a number of constricted coronary arteries and an emergency operation was performed successfully.

“Everything worked: the colleagues who immediately stepped in, the fire and rescue crew, ourselves, and then the hospital treatment. But without LUCAS, I doubt there would have been such a happy ending. This is the best aid we could have in our job. Thanks to LUCAS, we can approach things more calmly. While LUCAS is operating, we have the chance to consider methodically what other steps need to be taken to help the patient,” says Ronny Holm.

On 2 June, Gunnar Karlsson was discharged from the hospital; he returned to work four months later.

“It’s hugely satisfying to encounter a case like Gunnar’s which provides a perfect example of a well-functioning care chain,” comments Matz Widerström.

Studies have shown a significant decline in the number of quality compressions given over time, even among trained

professional providers.^{1,2} Today it is recommended that a new caregiver take over CPR every three minutes to reduce rescuer fatigue. However, precious time is wasted when switching to a new caregiver, and most significantly, it can take one to two minutes to rebuild an adequate pressure gradient after interrupting CPR.

Carrying out effective CPR in a moving vehicle is extremely difficult and dangerous. LUCAS can continue compressions during transport, providing consistent, uninterrupted compressions while rescuers are freed to wear seatbelts and pursue additional medical intervention.

The LUCAS chest compression system provides compressions of consistent depth and rhythm, safer conditions for responders during transport, and ease of use. This system facilitates circulation and supply of oxygen to vital organs, and hence provides more time for resuscitation. LUCAS is designed to provide:

- Effective, consistent and uninterrupted chest compressions
- Good circulation during the patient transport process
- Safety during transportation for both personnel and patient
- Hands-free compressions in most situations

¹ A. Ashton, et al; “Effect of rescuer fatigue on performance of continuous external chest compressions over 3 minutes”; *Resuscitation* 55 (2002) 151-155.

² Hightower D: *Annals of Emergency Medicine* 1995 Sept 26:3

For further information, please call 1.800.442.1142 or visit our Web site at www.physio-control.com

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