



Taipei

Emergency CPR in Four Minutes Saving a Dying Person

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70 years old Mr. Chen suffered a stroke two months ago. He was discharged to go home after his condition was stabilized. Recently, in the middle of the night, he felt the tightness of the chest, difficulty in breathing, lost consciousness and fell to the ground. His son was once trained as an emergency personnel, and was very alert about the situation. He judged that his father's heart had stopped. So he called the ambulance and immediately began to administer CPR on his father. When the ambulance arrived, they used automated external defibrillator (AED) and revived his vital sign. Then they transported him to Taipei Tzu Chi Hospital for emergency treatment. He was diagnosed with heart attack and severe blockage of the coronary artery. The medical team adopted hypothermia and "micro coronary artery bypass graft" surgery. Mr. Chen recovered and went home.

Before Mr. Chen had the stroke, doctor had discovered that the internal carotid artery was severely narrowed, thus, when his heart stopped, the medical team worried that this might



Taipei Tzu Chi Hospital Cardio Vascular medical center director Dr. Chang Yen led the team successfully cured the patient with myocardial infarction.

have damaged his brain. Although Mr. Chen's heart was revived, he was in deep coma. From the emergency room to the intensive care unit (ICU), and continuous extracorporeal hypothermia treatment, the family was informed slim recovery.

Luckily, when the patient's heart stopped beating, the quick and accurate emergency treatment was administered. With hypothermia treatment, Mr. Chen was out of coma after two days and soon was able to breath on his own without an external breathing machine.

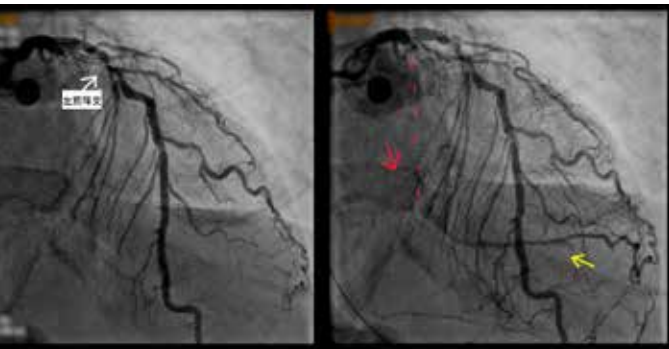
When a patient's heart and lung stop, the brain might be damaged due to a lack of oxygen. In general, the survival rate is pretty low if breathing and heart beat both stop. The chairman of cardiovascular medical department Dr. Chang Yen pointed out, "The brain can only sustain 4 to 6 minutes without oxygen, and this is the golden window. Exceeding that time duration, the

brain will suffer irreversible damage. The damage to the brain can range from memory deterioration, slow responsiveness, to vegetative or even brain dead. The longer the lack of oxygen the lower is the survival rate.” Therefore, the ideal time to revive the heart and lung to sustain the brain function is within 4 minutes after a heart attack. He noted that, although people have basic knowledge regarding CPR, they might panic and forget the importance of timing. Some would even try to wake the patient, thus missing valuable short time frame.

Mr. Chen’s son had once received CPR training, and he called the ambulance right away and administered CPR. Thus, Mr. Chen received the

immediate CPR, and was treated afterwards. Dr. Chang Yen described some patients received emergency treatment and revived the heartbeat. But because of a lack of oxygen, the brain is damaged or cannot recover from coma. “Hypothermia” treatment is used to control the temperature in order to let the patient wake up after an emergency treatment, and reduce the residual damage but increase the chance of recovery.

Although Mr. Chen avoided a vegetative state, he was not really out of danger. The cardiovascular doctor arranged the examination of cardio catheter and discovered that he had severe blockage in the coronary artery. If not treated immediately, he would suffer myocardial infarction. Because the blockage was too severe and narrowed the artery, he couldn’t be treated by using a stent. The only option was to have surgery. After the stroke, Mr. Chen’s right side body was very weak, if using the traditional surgery, he might not be able to do physical therapy to recover. After discussion with family, Dr. Chang Yen and Dr. Lo Chung-Yu decided to use Da Vinci surgical system to perform “coronary artery bypass graft”. Three days later, he was able to walk with a cane and recovered well and discharged from hospital two weeks later.



Cardio catheter picture: right before the surgery, the picture of the coronary artery, the patient’s coronary artery was very narrow because of severe blockage. One of them was completely blocked, disappeared from the picture. On the right side, the red dashed line should be returned to where the indicated place, but because of blockage, the blood relied on the smaller artery back to heart (yellow arrow)