The New Science of Cardiac Arrest

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A Seattle 911 dispatcher receives a call from a woman whose husband has just collapsed and has no pulse. Believing correctly that the man has gone into cardiac arrest, the operator coaches the woman to perform CPR, a rotating series of quick chest compressions followed by two quick breaths into his mouth to provide oxygen. "Why is it that every time I press on his chest, he opens his eyes, and every time I stop and breathe for him, he goes back to sleep?" the woman asks.

"When I heard the tape of this conversation, I was astounded,"says Gordan Ewy, MD, chief of cardiology at the University of Arizona College of Medicine. "This woman had learned in 10 minutes what it took us 10 years of research to find out." That is to say, giving mouth-to-mouth to someone in cardiac arrest is not only wrong — it could also be deadly.

Every year, about half a million Americans go into sudden cardiac arrest. It's the leading cause of death in America, and 95 percent of its victims die within minutes. Cardiac arrest happens when the heart stops pumping blood because the rhythm becomes disordered and unsynchronized (called ventricular fibrillation). This happens most often as the result of underlying heart disease. Experts have taught for more than 40 years to give someone in cardiac arrest mouth-to-mouth between chest compressions, but in a recent study published in *The Lancet*, scientists found that survival rates of cardiac victims were higher when compressions were not accompanied by mouth-to-mouth (echoing studies that have been coming out for more than a decade). That's because a person's blood remains fully oxygenated when the heart stops. The only time mouth-to-mouth is necessary, some heart specialists now believe, is in the case of a drowning or a drug overdose. In those cases, the heart is still pumping blood, so the body's oxygen levels are quickly depleted.

"If you see someone drop to the ground suddenly with abnormal breathing and no pulse, that's cardiac arrest," says Dr. Ewy, who has been recognized by the American Heart Association for his contributions to the science of CPR. "What you need to do is immediately call 911. If there's a defibrillator around, send someone to get it while you start continuous chest compressions (CCC) at a pace of 100 per minute." A defibrillator is the only thing that can depolarize the muscle fibers that are spasming out of sequence (i.e., jumpstart the heart). Chest compressions simply buy the person time by moving blood into his heart and brain, keeping the blood pressure from falling to zero and the person from slipping into a coma while medical services race to the scene. It takes only six minutes for someone to go from ventricular fibrillation to flat line if nothing is done, but — as we now know — there is a twofold increase in survival when chest compressions are applied.

Learn how to perform CCC's.

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