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Value of CPR Without Administration of Drugs Questioned by Researcher

Results of recent clinical investigations show that use of cardiopulmonary resuscitation (CPR) without associated drug therapy or airway control may be doing patients more harm than good.

Dr. Blaine C. White, a medical scientist formerly at Wayne State University in Detroit and now associate professor of Emergency Medicine at Michigan State University in Lansing, repeated his concern over the efficacy of CPR at the 76th Annual Scientific Assembly of the Southern Medical Association in Atlanta. He stated, "The question is going to be whether or not...CPR is the biggest hoax that was ever perpetrated on the American people, and," he added, "whether or not we've trained millions of people out there to produce a low flow insult to the brain which results in irreversible morphologic injury by the time the patient gets to the emergency department."

The Michigan State physician reported that "evidence is accumulating that the physiology in closed-chest CPR may be responsible for the poor outcome data that we are in fact now forced to confront." White explained that previous research findings concluded that, "closed-chest basic CPR is producing very poor mean arterial pressures and very high intrathoracic venous pressures. I'll tell you also that it jacks up the intracranial pressure progressively as you might expect and it's producing very poor cerebral blood flow."

White and his associates have conducted preliminary morphologic work by taking brain biopsies in dogs 30 minutes after death, both with and without performing CPR. Surprisingly, the results showed that the animals would have been in better condition if cardiac massage had not been conducted. White stated "If you kill a dog and take a brain biopsy after 30 minutes, the brain looks normal. If you kill a dog and do closed-chest cardiac massage for 30 minutes and you take a brain biopsy and look at it, the neurons have just exploded."

According to a story in *Emergency Department News* (December 1982) another investigator reported similar structural evidence from controlled 10 percent cerebral blood flow in rats. Again, tests indicated a morphologic explosion with 30 minutes of CPR at 10 percent cerebral blood flow.

White stated, "Many of us who are really active in these investigations are very, very concerned. With these low-flow states that are being generated by basic closed-chest massage, it may be worse than leaving the guy alone." He added, "This whole thing is really going to heat up, and the place it is going to heat up is not the emergency department."

White continued, "The general public has been trained in a technique that got widely disseminated with very little data about cardiac output; no data on brain blood; and only anecdotal data on outcome which now, when we start to look at it in large systems, is neurologically very poor."

Stressed was the fact that permanent neurologic disability occurs in over 80 percent of patients who survive a cardiac arrest outside the hospital. "We

had hoped that the application of CPR after cardiac arrest would provide sufficient cerebral blood flow to protect the brain for substantially longer periods of time. Recent reports, however, indicate that CPR is, in fact, of limited effectiveness in providing cerebral blood flow," said White. He pointed out that there are particular drugs which can be administered in the emergency department to raise blood flow rates. As reported in *EMS Communicator* (March/April 1982), the Michigan physician/scientist advocates the administration of calcium blockers or antagonists to maintain cerebral perfusion in patients with cardiac arrest, since calcium is physiologically in the cerebral injury that results from anoxia and ischemia.

White said that while perfusion of the cerebral cortex during closed-chest CPR may be as low as 10 percent of pre-arrest blood flow, internal cardiac massage with the administration of epinephrine is often a good way to raise cerebral flow to acceptable levels. "You can kill a dog as dead as a rock for 30 minutes and do internal cardiac massage with epinephrine and have him going again," said White.

Additional clinical trials in CPR will soon be performed by Dr. Donald Trunkey of the University of California, San Francisco, Medical Center and according to White, he regards the upcoming tests to be "extraordinarily important."

White concluded his presentation to the Scientific Assembly stating, "If I drop dead, pour 15 pounds of ice on my head and transport me."