



RCP del Adulto

Reanimación Cardiopulmonar Básica del Adulto

Índice

REFERENCIAS	2
GUIAS	2
EPIDEMIOLOGIA	3
PRONOSTICO	4
VIA AEREA	5
RESPIRACION	6
CIRCULACIÓN	8
DEFIBRILACIÓN	12
SEGURIDAD	17



RCP del Adulto

REFERENCIAS

GUIAS

- European Resuscitation Council Resuscitation Guidelines for Resuscitation 2005 Resuscitation (2005) 67S1
- American Heart Association Guidelines for CPR and ECC Circulation. 2005;112:IV-18-IV-34.



RCP del Adulto

EPIDEMIOLOGIA

- American Heart Association. Heart Disease and Stroke Statistics - 2005 Update. Dallas, Tex: American Heart Association, 2005.
- Sans S, Kesteloot H, Kromhout D. The burden of cardiovascular diseases mortality in Europe Task Force of the European Society of Cardiology on Cardiovascular Mortality and Morbidity Statistics in Europe. *Eur Heart J* 1997;18:1231-48.
- Chugh SS, Jui J, Gunson K, et al. Current burden of sudden cardiac death: multiple source surveillance versus retrospective death certificate-based review in a large U.S. community. *J Am Coll Cardiol* 2004;44:1268-75.
- Rea TD, Pearce RM, Raghunathan TE, et al. Incidence of out-of-hospital cardiac arrest. *Am J Cardiol* 2004;93:1455-60.
- Rea TD, Eisenberg MS, Sinibaldi G, White RD. Incidence of EMS-treated out-of-hospital cardiac arrest in the United States. *Resuscitation* 2004;63:17-24.



RCP del Adulto

PRONOSTICO

- Rea TD, Pearce RM, Raghunathan TE, et al. Incidence of out-of-hospital cardiac arrest. *Am J Cardiol* 2004;93:1455-60.
- Rea TD, Eisenberg MS, Sinibaldi G, White RD. Incidence of EMS-treated out-of-hospital cardiac arrest in the United States. *Resuscitation* 2004;63:17-24.
- American Heart Association in collaboration with International Liaison Committee on Resuscitation. Guidelines 2000 for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care: International Consensus on Science, Part 3: Adult Basic Life Support. *Resuscitation* 2000;46:29-72.
- Fredriksson M, Herlitz J, Nichol G. Variation in outcome in studies of out-of-hospital cardiac arrest: A review of studies conforming to the Utstein guidelines. *Am J Emerg Med* 2003;21:276-81.
- Nichol G, Stiell IG, Laupacis A, Pham B, De Maio VJ, Wells GA. A cumulative meta-analysis of the effectiveness of defibrillator-capable emergency medical services for victims of out-of-hospital cardiac arrest. *Ann Emerg Med* 1999;34(pt 1):517-25.
- Peberdy MA, Kaye W, Ornato JP, et al. Cardiopulmonary resuscitation of adults in the hospital: a report of 14720 cardiac arrests from the National Registry of Cardiopulmonary Resuscitation. *Resuscitation* 2003;58:297-308.
- Kannel WB, Wilson PW, D'Agostino RB, Cobb J. Sudden coronary death in women. *Am Heart J* 1998;136:205-12.
- Cupples LA, Gagnon DR, Kannel WB. Long- and short-term risk of sudden coronary death. *Circulation* 1992;85:111-8.
- Albert CM, Chae CU, Grodstein F, et al. Prospective study of sudden cardiac death among women in the United States. *Circulation* 2003;107:2096-101.
- Wannamethee G, Shaper AG, Macfarlane PW, Walker M. Risk factors for sudden cardiac death in middle-aged British men. *Circulation* 1995;91:1749-56.
- Jouven X, Desnos M, Guerot C, Ducimetiere P. Predicting sudden death in the population: the Paris Prospective Study I. *Circulation* 1999;99:1978-83.
- Cleland JGF, Chattopadhyay S, Khand A, Houghton T, Kaye GC. Prevalence and incidence of arrhythmias and sudden death in heart failure. *Heart Fail Rev* 2002;7:229-42.



RCP del Adulto

VIA AEREA

- Guildner CW. Resuscitation: opening the airway A comparative study of techniques for opening an airway obstructed by the tongue. JACEP 1976;5:588-90.
- Safar P, Aguto-Escarraga L. Compliance in apneic anesthetized adults. Anesthesiology 1959;20:283-9.
- Greene DG, Elam JO, Dobkin AB, Studley CL. Cinefluorographic study of hyperextension of the neck and upper airway patency. JAMA 1961;176:570-3.
- Morikawa S, Safar P, Decarlo J. Influence of the headjaw position upon upper airway patency. Anesthesiology 1961;22:265-70.
- Ruben HM, Elam JO, Ruben AM, Greene DG. Investigation of upper airway problems in resuscitation 1 studies of pharyngeal X-rays and performance by laymen. Anesthesiology 1961;22:271-9.
- Elam JO, Greene DG, Schneider MA, et al. Head-tilt method of oral resuscitation. JAMA 1960;172:812-5.



RESPIRACION

- Ruppert M, Reith MW, Widmann JH, et al. Checking for breathing: evaluation of the diagnostic capability of emergency medical services personnel, physicians, medical students, and medical laypersons. *Ann Emerg Med* 1999;34:720-9.
- Perkins GD, Stephenson B, Hulme J, Monsieurs KG. Birmingham assessment of breathing study (BABS). *Resuscitation* 2005;64:109-13.
- Clark JJ, Larsen MP, Culley LL, Graves JR, Eisenberg MS. Incidence of agonal respirations in sudden cardiac arrest. *Ann Emerg Med* 1992;21:1464-7.
- Hauff SR, Rea TD, Culley LL, Kerry F, Becker L, Eisenberg MS. Factors impeding dispatcher-assisted telephone cardiopulmonary resuscitation. *Ann Emerg Med* 2003;42:731-7.
- Ruben H. The immediate treatment of respiratory failure. *Br J Anaesth* 1964;36:542-9.
- Bhalla RK, Corrigan A, Roland NJ. Comparison of two face masks used to deliver early ventilation to laryngectomized patients. *Ear Nose Throat J* 2004;83(414):6.
- Wenzel V, Idris AH, Banner MJ, Kubilis PS, Williams JL. Influence of tidal volume on the distribution of gas between the lungs and stomach in the nonintubated patient receiving positive-pressure ventilation. *Crit Care Med* 1998;26:364-8.
- Dorges V, Sauer C, Ocker H, Wenzel V, Schmucker P. Smaller tidal volumes during cardiopulmonary resuscitation: comparison of adult and paediatric self-inflatable bags with three different ventilatory devices. *Resuscitation* 1999;43:31-7.
- Zecha-Stallinger A, Wenzel V, Wagner-Berger HG, von Goedecke A, Lindner KH, Hormann C. A strategy to optimise the performance of the mouth-to-bag resuscitator using small tidal volumes: effects on lung and gastric ventilation in a bench model of an unprotected airway. *Resuscitation* 2004;61:69-74.
- Wenzel V, Keller C, Idris AH, Dorges V, Lindner KH, Brimacombe JR. Effects of smaller tidal volumes during basic life support ventilation in patients with respiratory arrest: good ventilation, less risk? *Resuscitation* 1999;43:25-9.
- Dorges V, Ocker H, Hagelberg S, Wenzel V, Schmucker P. Optimisation of tidal volumes given with selfinflatable bags without additional oxygen. *Resuscitation* 2000;43:195-9.
- Langhelle A, Sunde K, Wik L, Steen PA. Arterial blood-gases with 500- versus ml tidal volumes during out-of-hospital CPR. *Resuscitation* 2000;45:27-33.
- Aufderheide TP, Lurie KG. Death by hyperventilation: a common and life-threatening problem during cardiopulmonary resuscitation. *Crit Care Med* 2004;32:S345-51.
- Aufderheide TP, Sigurdsson G, Pirralo RG, et al. Hyperventilation-induced hypotension during cardiopulmonary resuscitation. *Circulation* 2004;109:1960-5.
- Pepe PE, Raedler C, Lurie KG, Wigginton JG. Emergency ventilatory management in hemorrhagic states: elemental or detrimental? *J Trauma* 2003;54:1048—55, discussion 55-7.
- Stallinger A, Wenzel V, Wagner-Berger H, et al. Effects of decreasing inspiratory flow rate during simulated basic life support ventilation of a cardiac arrest patient on lung and stomach tidal volumes. *Resuscitation* 2002;54:167-73.
- Osterwalder JJ, Schuhwerk W. Effectiveness of mask ventilation in a training manikin A comparison between the Oxylator EM100 and the bag-valve device. *Resuscitation* 1998;36:23-7.
- Menegazzi JJ, Winslow HJ. In-vitro comparison of bag valve-mask and the manually triggered oxygen-powered breathing device. *Acad Emerg Med* 1994;1:29-33.
- Noordergraaf GJ, van Dun PJ, Kramer BP, et al. Can first responders achieve and maintain normocapnia when sequentially ventilating with a bag-valve device and two oxygen-driven resuscitators? A controlled clinical trial in 104 patients. *Eur J Anaesthesiol* 2004;21:367-72.
- Johannigman JA, Branson RD, Johnson DJ, Davis Jr K, Hurst JM. Out-of-hospital ventilation: bag-valve device vs transport ventilator. *Acad Emerg Med* 1995;2:719-24.



RCP del Adulto

- Updike G, Mosesso VNJ, Auble TE, Delgado E. Comparison of bag-valve-mask, manually triggered ventilator, and automated ventilator devices used while ventilating a nonintubated mannikin model. *Prehosp Emerg Care* 1998;2:52-5.
- Johannigman JA, Branson RD, Davis Jr K, Hurst JM. Techniques of emergency ventilation: a model to evaluate tidal volume, airway pressure, and gastric insufflation. *J Trauma* 1991;31:93—8.



RCP del Adulto

CIRCULACIÓN

- Hallstrom A, Cobb L, Johnson E, Copass M. Cardiopulmonary resuscitation by chest compression alone or with mouth-to-mouth ventilation. *N Engl J Med* 2000;342:1546-53.
- Bahr J, Klingler H, Panzer W, Rode H, Kettler D. Skills of lay people in checking the carotid pulse. *Resuscitation* 1997;35:23-6.
- Orlowski JP. Optimum position for external cardiac compression in infants and young children. *Ann Emerg Med* 1986;15:667-73.
- Kundra P, Dey S, Ravishankar M. Role of dominant hand position during external cardiac compression. *Br J Anaesth* 2000;84:491-3.
- Handley AJ. Teaching hand placement for chest compression - a simpler technique. *Resuscitation* 2002;53:29-36.
- Abella BS, Alvarado JP, Myklebust H, et al. Quality of cardiopulmonary resuscitation during in-hospital cardiac arrest. *JAMA* 2005;293:305-10.
- Abella BS, Sandbo N, Vassilatos P, et al. Chest compression rates during cardiopulmonary resuscitation are suboptimal: a prospective study during in-hospital cardiac arrest. *Circulation* 2005;111:428-34.
- Wik L, Kramer-Johansen J, Myklebust H, et al. Quality of cardiopulmonary resuscitation during out-of-hospital cardiac arrest. *JAMA* 2005;293:299-304.
- Ko PC, Chen WJ, Lin CH, Ma MH, Lin FY. Evaluating the quality of prehospital cardiopulmonary resuscitation by reviewing automated external defibrillator records and survival for out-of-hospital witnessed arrests. *Resuscitation* 2005;64:163-9.
- Maier GW, Tyson Jr GS, Olsen CO, et al. The physiology of external cardiac massage: high-impulse cardiopulmonary resuscitation. *Circulation* 1984;70:86-101.
- Feneley MP, Maier GW, Kern KB, et al. Influence of compression rate on initial success of resuscitation and 24 hour survival after prolonged manual cardiopulmonary resuscitation in dogs. *Circulation* 1988;77:240-50.
- Swart GL, Mateer JR, DeBehnke DJ, Jameson SJ, Osborn JL. The effect of compression duration on hemodynamics during mechanical high-impulse CPR. *Acad Emerg Med* 1994;1:430-7.
- Kern KB, Carter AB, Showen RL, et al. Twenty-four hour survival in a canine model of cardiac arrest comparing three methods of manual cardiopulmonary resuscitation. *J Am Coll Cardiol* 1986;7:859-67.
- Tucker KJ, Khan J, Idris A, Savitt MA. The biphasic mechanism of blood flow during cardiopulmonary resuscitation: a physiologic comparison of active compression-decompression and high-impulse manual external cardiac massage. *Ann Emerg Med* 1994;24:895-906.
- Halperin HR, Tsitlik JE, Guerici AD, et al. Determinants of blood flow to vital organs during cardiopulmonary resuscitation in dogs. *Circulation* 1986;73:539-50.
- Swenson RD, Weaver WD, Niskanen RA, Martin J, Dahlberg S. Hemodynamics in humans during conventional and experimental methods of cardiopulmonary resuscitation. *Circulation* 1988;78:630-9.
- Ornato JP, Gonzalez ER, Garnett AR, Levine RL, McClung BK. Effect of cardiopulmonary resuscitation compression rate on end-tidal carbon dioxide concentration and arterial pressure in man. *Crit Care Med* 1988;16:241-5.
- Milander MM, Hiscok PS, Sanders AB, Kern KB, Berg RA, Ewy GA. Chest compression and ventilation rates during cardiopulmonary resuscitation: the effects of audible tone guidance. *Acad Emerg Med* 1995;2:708-13.
- Babbs CF, Voorhees WD, Fitzgerald KR, Holmes HR, Geddes LA. Relationship of blood pressure and flow during CPR to chest compression amplitude: evidence for an effective compression threshold. *Ann Emerg Med* 1983;12:527-32.



RCP del Adulto

- Bellamy RF, DeGuzman LR, Pedersen DC. Coronary blood flow during cardiopulmonary resuscitation in swine. *Circulation* 1984;69:174-80.
- Hightower D, Thomas SH, Stone CK, Dunn K, March JA. Decay in quality of closed-chest compressions over time. *Ann Emerg Med* 1995;26:300-3.
- Aufderheide TP, Pirrallo RG, Yannopoulos D, et al. Incomplete chest wall decompression: a clinical evaluation of CPR performance by EMS personnel and assessment of alternative manual chest compression-decompression techniques. *Resuscitation* 2005;64:353-62.
- Yannopoulos D, McKnite S, Aufderheide TP, et al. Effects of incomplete chest wall decompression during cardiopulmonary resuscitation on coronary and cerebral perfusion pressures in a porcine model of cardiac arrest. *Resuscitation* 2005;64:363-72.
- Wolfe JA, Maier GW, Newton Jr JR, et al. Physiologic determinants of coronary blood flow during external cardiac massage. *J Thorac Cardiovasc Surg* 1988;95:523-32.
- Talley DB, Ornato JP, Clarke AM. Computer-aided characterization and optimization of the Thumper compression waveform in closed-chest CPR. *Biomed Instrum Technol* 1990;24:283-8.
- Handley AJ, Handley JA. The relationship between rate of chest compression and compression:relaxation ratio. *Resuscitation* 1995;30:237-41.
- Handley AJ, Handley SA. Improving CPR performance using an audible feedback system suitable for incorporation into an automated external defibrillator. *Resuscitation* 2003;57:57-62.
- Perkins GD, Benny R, Giles S, Gao F, Tweed MJ. Do different mattresses affect the quality of cardiopulmonary resuscitation? *Intensive Care Med* 2003;29:2330-5.
- Tweed M, Tweed C, Perkins GD. The effect of differing support surfaces on the efficacy of chest compressions using a resuscitation manikin model. *Resuscitation* 2001;51:179-83.
- Van Hoeyweghen RJ, Bossaert LL, Mullie A, et al. Quality and efficiency of bystander CPR Belgian Cerebral Resuscitation Study Group. *Resuscitation* 1993;26:47-52.
- Tobias JD, Mencio GA, Atwood R, Gurwitz GS. Intraoperative cardiopulmonary resuscitation in the prone position. *J Pediatr Surg* 1994;29:1537-8.
- Dequin PF, Hazouard E, Legras A, Lanotte R, Perrotin D. Cardiopulmonary resuscitation in the prone position: Kouwenhoven revisited. *Intensive Care Med* 1996;22:1272.
- Sun WZ, Huang FY, Kung KL, Fan SZ, Chen TL. Successful cardiopulmonary resuscitation of two patients in the prone position using reversed precordial compression. *Anesthesiology* 1992;77:202-4.
- Brown J, Rogers J, Soar J. Cardiac arrest during surgery and ventilation in the prone position: a case report and systematic review. *Resuscitation* 2001;50:233-8.
- Loewenthal A, De Albuquerque AM, Lehmann-Meurice C, Otteni JC. [Efficacy of external cardiac massage in a patient in the prone position]. *Ann Fr Anesth Reanim* 1993;12:587-9.
- Kelleher A, Mackersie A. Cardiac arrest and resuscitation of a 6-month old achondroplastic baby undergoing neurosurgery in the prone position. *Anaesthesia* 1995;50:348-50.
- Bilfield LH, Regula GA. A new technique for external heart compression. *JAMA* 1978;239:2468-9.
- Sefrin P, Albert M. [External heart compression with the heel (author's transl)]. *Anaesthesist* 1979;28:540-5.
- Jost U. [External heart massage by the leg-heel method (author's transl)]. *Anasth Intensivther Notfallmed* 1980;15:439-42.
- Criley JM, Blaufuss AH, Kissel GL. Cough-induced cardiac compression: self-administered from of cardiopulmonary resuscitation. *JAMA* 1976;236:1246-50.
- Miller B, Cohen A, Serio A, Bettock D. Hemodynamics of cough cardiopulmonary resuscitation in a patient with sustained torsades de pointes/ventricular flutter. *J Emerg Med* 1994;12:627-32.
- Saba SE, David SW. Sustained consciousness during ventricular fibrillation: case report of cough cardiopulmonary resuscitation. *Cathet Cardiovasc Diagn* 1996;37:47-8.



RCP del Adulto

- Berg RA, Sanders AB, Kern KB, et al. Adverse hemodynamic effects of interrupting chest compressions for rescue breathing during cardiopulmonary resuscitation for ventricular fibrillation cardiac arrest. *Circulation* 2001;104:2465-70.
- Yu T, Weil MH, Tang W, et al. Adverse outcomes of interrupted precordial compression during automated defibrillation. *Circulation* 2002;106:368-72.
- Kern KB, Hilwig RW, Berg RA, Sanders AB, Ewy GA. Importance of continuous chest compressions during cardiopulmonary resuscitation: improved outcome during a simulated single lay-rescuer scenario. *Circulation* 2002;105:645-9.
- van Alem AP, Sanou BT, Koster RW. Interruption of cardiopulmonary resuscitation with the use of the automated external defibrillator in out-of-hospital cardiac arrest. *Ann Emerg Med* 2003;42:449-57.
- Eftestol T, Sunde K, Steen PA. Effects of interrupting precordial compressions on the calculated probability of defibrillation success during out-of-hospital cardiac arrest. *Circulation* 2002;105:2270-3.
- Berg RA, Hilwig RW, Kern KB, Ewy GA. Bystander chest compressions and assisted ventilation independently improve outcome from piglet asphyxial pulseless "cardiac arrest". *Circulation* 2000;101:1743-8.
- Berg RA, Kern KB, Hilwig RW, et al. Assisted ventilation does not improve outcome in a porcine model of singlerescuer bystander cardiopulmonary resuscitation. *Circulation* 1997;95:1635-41.
- Berg RA, Kern KB, Hilwig RW, Ewy GA. Assisted ventilation during 'bystander' CPR in a swine acute myocardial infarction model does not improve outcome. *Circulation* 1997;96:4364-71.
- Sanders AB, Kern KB, Berg RA, Hilwig RW, Heidenrich J, Ewy GA. Survival and neurologic outcome after cardiopulmonary resuscitation with four different chest compression-ventilation ratios. *Ann Emerg Med* 2002;40:553-62.
- Dorph E, Wik L, Stromme TA, Eriksen M, Steen PA. Quality of CPR with three different ventilation:compression ratios. *Resuscitation* 2003;58:193-201.
- Dorph E, Wik L, Stromme TA, Eriksen M, Steen PA. Oxygen delivery and return of spontaneous circulation with ventilation: compression ratio 2:30 versus chest compressions only CPR in pigs. *Resuscitation* 2004;60:309-18.
- Babbs CF, Kern KB. Optimum compression to ventilation ratios in CPR under realistic, practical conditions: a physiological and mathematical analysis. *Resuscitation* 2002;54:147-57.
- Kawamae K, Murakawa M, Otsuki M, Matsumoto Y, Tase C. Precordial compression without airway management induces lung injury in the rodent cardiac arrest model with central apnea. *Resuscitation* 2001;51:165-71.
- Chandra NC, Gruben KG, Tsitlik JE, et al. Observations of ventilation during resuscitation in a canine model. *Circulation* 1994;90:3070-5.
- Waalewijn RA, Tijssen JG, Koster RW. Bystander initiated actions in out-of-hospital cardiopulmonary resuscitation: results from the Amsterdam Resuscitation Study (ARRESUST). *Resuscitation* 2001;50:273-9.
- Hallstrom A, Cobb L, Johnson E, Copass M. Cardiopulmonary resuscitation by chest compression alone or with mouth-to-mouth ventilation. *N Engl J Med* 2000;342:1546-53.
- Cobb LA, Fahrenbruch CE, Walsh TR, et al. Influence of cardiopulmonary resuscitation prior to defibrillation in patients with out-of-hospital ventricular fibrillation. *JAMA* 1999;281:1182-8.
- Wik L, Hansen TB, Fylling F, et al. Delaying defibrillation to give basic cardiopulmonary resuscitation to patients with out-of-hospital ventricular fibrillation: a randomized trial. *JAMA* 2003;289:1389-95.
- Jacobs IG, Finn JC, Ozer HF, Jelinek GA. CPR before defibrillation in out-of-hospital cardiac arrest: a randomized trial. *Emerg Med Australas* 2005;17:39-45.



RCP del Adulto

- Berg RA, Hilwig RW, Kern KB, Ewy GA. Precountershock cardiopulmonary resuscitation improves ventricular fibrillation median frequency and myocardial readiness for successful defibrillation from prolonged ventricular fibrillation: a randomized, controlled swine study. *Ann Emerg Med* 2002;40:563-70.
- Berg RA, Hilwig RW, Ewy GA, Kern KB. Precountershock cardiopulmonary resuscitation improves initial response to defibrillation from prolonged ventricular fibrillation: a randomized, controlled swine study. *Crit Care Med* 2004;32:1352-7.
- Kolarova J, Ayoub IM, Yi Z, Gazmuri RJ. Optimal timing for electrical defibrillation after prolonged untreated ventricular fibrillation. *Crit Care Med* 2003;31:2022-8.
- Niemann JT, Cairns CB, Sharma J, Lewis RJ. Treatment of prolonged ventricular fibrillation: immediate countershock versus high-dose epinephrine and CPR preceding countershock. *Circulation* 1992;85:281-7.



RCP del Adulto

DESFIBRILACIÓN

- The Public Access Defibrillation Trial Investigators. Public access defibrillation and survival after out-of-hospital cardiac arrest. *N Engl J Med* 2004;351:637-46.
- Valenzuela TD, Roe DJ, Nichol G, Clark LL, Spaite DW, Hardman RG. Outcomes of rapid defibrillation by security officers after cardiac arrest in casinos. *N Engl J Med* 2000;343:1206-9.
- Caffrey SL, Willoughby PJ, Pepe PE, Becker LB. Public use of automated external defibrillators. *N Engl J Med* 2002;347:1242-7.
- O'Rourke MF, Donaldson E, Geddes JS. An airline cardiac arrest program. *Circulation* 1997;96:2849-53.
- Page RL, Joglar JA, Kowal RC, et al. Use of automated external defibrillators by a U.S. airline. *N Engl J Med* 2000;343:1210-6.
- van Alem AP, Vrenken RH, de Vos R, Tijssen JG, Koster RW. Use of automated external defibrillator by first responders in out of hospital cardiac arrest: prospective controlled trial. *BMJ* 2003;327:1312.
- Myerburg RJ, Fenster J, Velez M, et al. Impact of community-wide police car deployment of automated external defibrillators on survival from out-of-hospital cardiac arrest. *Circulation* 2002;106:1058-64.
- Capucci A, Aschieri D, Piepoli MF, Bardy GH, Iconomu E, Arvedi M. Tripling survival from sudden cardiac arrest via early defibrillation without traditional education in cardiopulmonary resuscitation. *Circulation* 2002;106:1065-70.
- White RD, Bunch TJ, Hankins DG. Evolution of a communitywide early defibrillation programme experience over 13 years using police/fire personnel and paramedics as responders. *Resuscitation* 2005;65:279-83.
- Mosesso Jr VN, Davis EA, Auble TE, Paris PM, Yealy DM. Use of automated external defibrillators by police officers for treatment of out-of-hospital cardiac arrest. *Ann Emerg Med* 1998;32:200-7.
- Smith KL, McNeil JJ. Cardiac arrests treated by ambulance paramedics and fire fighters: The Emergency Medical Response Program. *Med J Aust* 2002;177:305-9.
- Kellermann AL, Hackman BB, Somes G, Kreth TK, Nail L, Dobyns P. Impact of first-responder defibrillation in an urban emergency medical services system. *JAMA* 1993;270:1708-13.
- Becker L, Eisenberg M, Fahrenbruch C, Cobb L. Public locations of cardiac arrest: implications for public access defibrillation. *Circulation* 1998;97:2106-9.
- Herlitz J, Bang A, Axelsson A, Graves JR, Lindqvist J. Experience with the use of automated external defibrillators in out of hospital cardiac arrest. *Resuscitation* 1998;37:3-7.
- Kellermann AL, Hackman BB, Dobyns P, Frazier C, Nail L. Engineering excellence: options to enhance firefighter compliance with standing orders for first-responder defibrillation. *Ann Emerg Med* 1993;22:1269-75.
- Macdonald RD, Swanson JM, Mottley JL, Weinstein C. Performance and error analysis of automated external defibrillator use in the out-of-hospital setting. *Ann Emerg Med* 2001;38:262-7.
- Sunde K, Eftestol T, Askenberg C, Steen PA. Quality assessment of defibrillation and advanced life support using data from the medical control module of the defibrillator. *Resuscitation* 1999;41:237-47.
- Cleland MJ, Maloney JP, Rowe BH. Problems associated with the Z-fold region of defibrillation electrodes. *J Emerg Med* 1998;16:157-61.
- Davis EA, Mosesso Jr VN. Performance of police first responders in utilizing automated external defibrillation on victims of sudden cardiac arrest. *Prehosp Emerg Care* 1998;2:101-7.



RCP del Adulto

- Ornato JP, Shipley J, Powell RG, Racht EM. Inappropriate electrical countershocks by an automated external defibrillator. *Ann Emerg Med* 1992;21:1278-82.
- Calle PA, Monsieurs KG, Buylaert WA. Unreliable post event report from an automated external defibrillator. *Resuscitation* 2001;50:357-61.
- Zafari AM, Zarter SK, Heggen V, et al. A program encouraging early defibrillation results in improved in-hospital resuscitation efficacy. *J Am Coll Cardiol* 2004;44:846-52.
- Berg RA, Hilwig RW, Kern KB, Sanders AB, Xavier LC, Ewy GA. Automated external defibrillation versus manual defibrillation for prolonged ventricular fibrillation: lethal delays of chest compressions before and after countershocks. *Ann Emerg Med* 2003;42:458-67.
- Domanovits H, Meron G, Sterz F, et al. Successful automatic external defibrillator operation by people trained only in basic life support in a simulated cardiac arrest situation. *Resuscitation* 1998;39:47-50.
- Cusnir H, Tongia R, Sheka KP, et al. In hospital cardiac arrest: a role for automatic defibrillation. *Resuscitation* 2004;63:183-8.
- Alp NJ, Rahman S, Bell JA, Shahi M. Randomised comparison of antero-lateral versus antero-posterior paddle positions for DC cardioversion of persistent atrial fibrillation. *Int J Cardiol* 2000;75:211-6.
- Mathew TP, Moore A, McIntyre M, et al. Randomised comparison of electrode positions for cardioversion of atrial fibrillation. *Heart* 1999;81:576-9.
- Garcia LA, Kerber RE. Transthoracic defibrillation: does electrode adhesive pad position alter transthoracic impedance? *Resuscitation* 1998;37:139-43.
- Kerber RE, Martins JB, Kelly KJ, et al. Self-adhesive preapplied electrode pads for defibrillation and cardioversion. *J Am Coll Cardiol* 1984;3:815-20.
- Botto GL, Politi A, Bonini W, Broffoni T, Bonatti R. External cardioversion of atrial fibrillation: role of paddle position on technical efficacy and energy requirements. *Heart* 1999;82:726-30.
- Kirchhof P, Eckardt L, Loh P, et al. Anterior-posterior versus anterior-lateral electrode positions for external cardioversion of atrial fibrillation: a randomised trial. *Lancet* 2002;360:1275-9.
- Kerber RE, Grayzel J, Hoyt R, Marcus M, Kennedy J. Transthoracic resistance in human defibrillation. Influence of body weight, chest size, serial shocks, paddle size and paddle contact pressure. *Circulation* 1981;63:676-82.
- Deakin CD, Sado DM, Petley GW, Clewlow F. Is the orientation of the apical defibrillation paddle of importance during manual external defibrillation? *Resuscitation* 2003;56:15-8.
- Pagan-Carlo LA, Spencer KT, Robertson CE, Dengler A, Birkett C, Kerber RE. Transthoracic defibrillation: importance of avoiding electrode placement directly on the female breast. *J Am Coll Cardiol* 1996;27:449-52.
- Kanz KG, Kay MV, Biberthaler P, et al. Susceptibility of automated external defibrillators to train overhead lines and metro third rails. *Resuscitation* 2004;62:189-98.
- Dalzell GW, Cunningham SR, Anderson J, Adgey AA. Electrode pad size, transthoracic impedance and success of external ventricular defibrillation. *Am J Cardiol* 1989;64:741-4.
- Thomas ED, Ewy GA, Dahl CF, Ewy MD. Effectiveness of direct current defibrillation: role of paddle electrode size. *Am Heart J* 1977;93:463-7.
- Samson RA, Atkins DL, Kerber RE. Optimal size of selfadhesive preapplied electrode pads in pediatric defibrillation. *Am J Cardiol* 1995;75:544-5.
- Atkins DL, Sirna S, Kieso R, Charbonnier F, Kerber RE. Pediatric defibrillation: importance of paddle size in determining transthoracic impedance. *Pediatrics* 1988;82:914-8.
- Atkins DL, Kerber RE. Pediatric defibrillation: current flow is improved by using "adult" electrode paddles. *Pediatrics* 1994;94:90-3.
- Hoyt R, Grayzel J, Kerber RE. Determinants of intracardiac current in defibrillation. Experimental studies in dogs. *Circulation* 1981;64:818-23.



RCP del Adulto

- Killingsworth CR, Melnick SB, Chapman FW, et al. Defibrillation threshold and cardiac responses using an external biphasic defibrillator with pediatric and adult adhesive patches in pediatric-sized piglets. *Resuscitation* 2002;55:177-85.
- Dahl CF, Ewy GA, Warner ED, Thomas ED. Myocardial necrosis from direct current countershock: effect of paddle electrode size and time interval between discharges. *Circulation* 1974;50:956-61.
- Deakin CD, McLaren RM, Petley GW, Clewlow F, Dalrymple-Hay MJ. A comparison of transthoracic impedance using standard defibrillation paddles and self-adhesive defibrillation pads. *Resuscitation* 1998;39:43-6.
- Kerber RE, Martins JB, Ferguson DW, et al. Experimental evaluation and initial clinical application of new self-adhesive defibrillation electrodes. *Int J Cardiol* 1985;8:57-66.
- Deakin CD. Paddle size in defibrillation. *Br J Anaesth* 1998;81:657-8.
- Kirchhof P, Monnig G, Wasmer K, et al. A trial of selfadhesive patch electrodes and hand-held paddle electrodes for external cardioversion of atrial fibrillation (MOBIPAPA). *Eur Heart J* 2005;26:1292-7.
- Bojar RM, Payne DD, Rastegar H, Diehl JT, Cleveland RJ. Use of self-adhesive external defibrillator pads for complex cardiac surgical procedures. *Ann Thorac Surg* 1988;46:587-8.
- Brown J, Rogers J, Soar J. Cardiac arrest during surgery and ventilation in the prone position: a case report and systematic review. *Resuscitation* 2001;50:233-8.
- Wilson RF, Sirna S, White CW, Kerber RE. Defibrillation of high-risk patients during coronary angiography using self-adhesive, preapplied electrode pads. *Am J Cardiol* 1987;60:380-2.
- Bradbury N, Hyde D, Nolan J. Reliability of ECG monitoring with a gel pad/paddle combination after defibrillation. *Resuscitation* 2000;44:203-6.
- Callaway CW, Sherman LD, Mosesso Jr VN, Dietrich TJ, Holt E, Clarkson MC. Scaling exponent predicts defibrillation success for out-of-hospital ventricular fibrillation cardiac arrest. *Circulation* 2001;103:1656-61.
- Eftestol T, Sunde K, Aase SO, Husoy JH, Steen PA. Predicting outcome of defibrillation by spectral characterization and nonparametric classification of ventricular fibrillation in patients with out-of-hospital cardiac arrest. *Circulation* 2000;102:1523-9.
- Eftestol T, Wik L, Sunde K, Steen PA. Effects of cardiopulmonary resuscitation on predictors of ventricular fibrillation defibrillation success during out-of-hospital cardiac arrest. *Circulation* 2004;110:10-5.
- Weaver WD, Cobb LA, Dennis D, Ray R, Hallstrom AP, Copass MK. Amplitude of ventricular fibrillation waveform and outcome after cardiac arrest. *Ann Intern Med* 1985;102:53-5.
- Brown CG, Dzwonczyk R. Signal analysis of the human electrocardiogram during ventricular fibrillation: frequency and amplitude parameters as predictors of successful countershock. *Ann Emerg Med* 1996;27:184-8.
- Callahan M, Braun O, Valentine W, Clark DM, Zegans C. Prehospital cardiac arrest treated by urban first-responders: profile of patient response and prediction of outcome by ventricular fibrillation waveform. *Ann Emerg Med* 1993;22:1664-77.
- Strohmenger HU, Lindner KH, Brown CG. Analysis of the ventricular fibrillation ECG signal amplitude and frequency parameters as predictors of countershock success in humans. *Chest* 1997;111:584-9.
- Strohmenger HU, Eftestol T, Sunde K, et al. The predictive value of ventricular fibrillation electrocardiogram signal frequency and amplitude variables in patients with outof-hospital cardiac arrest. *Anesth Analg* 2001;93:1428-33.
- Podbregar M, Kovacic M, Podbregar-Mars A, Brezocnik M. Predicting defibrillation success by 'genetic' programming in patients with out-of-hospital cardiac arrest. *Resuscitation* 2003;57:153-9.



RCP del Adulto

- Monsieurs KG, De Cauwer H, Wuyts FL, Bossaert LL. A rule for early outcome classification of out-of-hospital cardiac arrest patients presenting with ventricular fibrillation. *Resuscitation* 1998;36:37-44.
- Menegazzi JJ, Callaway CW, Sherman LD, et al. Ventricular fibrillation scaling exponent can guide timing of defibrillation and other therapies. *Circulation* 2004;109:926-31.
- Povoas HP, Weil MH, Tang W, Bisera J, Klouche K, Barbatsis A. Predicting the success of defibrillation by electrocardiographic analysis. *Resuscitation* 2002;53:77-82.
- Noc M, Weil MH, Tang W, Sun S, Pernat A, Bisera J. Electrocardiographic prediction of the success of cardiac resuscitation. *Crit Care Med* 1999;27:708-14.
- Strohmenger HU, Lindner KH, Keller A, Lindner IM, Pfenninger EG. Spectral analysis of ventricular fibrillation and closed-chest cardiopulmonary resuscitation. *Resuscitation* 1996;33:155-61.
- Noc M, Weil MH, Gazmuri RJ, Sun S, Biscera J, Tang W. Ventricular fibrillation voltage as a monitor of the effectiveness of cardiopulmonary resuscitation. *J Lab Clin Med* 1994;124:421-6.
- Lightfoot CB, Nremt P, Callaway CW, et al. Dynamic nature of electrocardiographic waveform predicts rescue shock outcome in porcine ventricular fibrillation. *Ann Emerg Med* 2003;42:230-41.
- Marn-Pernat A, Weil MH, Tang W, Pernat A, Bisera J. Optimizing timing of ventricular defibrillation. *Crit Care Med* 2001;29:2360-5.
- Hamprecht FA, Achleitner U, Krismer AC, et al. Fibrillation power, an alternative method of ECG spectral analysis for prediction of countershock success in a porcine model of ventricular fibrillation. *Resuscitation* 2001;50:287-96.
- Amann A, Achleitner U, Antretter H, et al. Analysing ventricular fibrillation ECG-signals and predicting defibrillation success during cardiopulmonary resuscitation employing $M(\alpha)$ -histograms. *Resuscitation* 2001;50:77-85.
- Brown CG, Griffith RF, Van Ligten P, et al. Median frequency - a new parameter for predicting defibrillation success rate. *Ann Emerg Med* 1991;20:787-9.
- Amann A, Rheinberger K, Achleitner U, et al. The prediction of defibrillation outcome using a new combination of mean frequency and amplitude in porcine models of cardiac arrest. *Anesth Analg* 2002;95:716-22, table of contents.
- Morrison LJ, Dorian P, Long J, et al. Out-of-hospital cardiac arrest rectilinear biphasic to monophasic damped sine defibrillation waveforms with advanced life support intervention trial (ORBIT). *Resuscitation* 2005;66:149-57.
- van Alem AP, Chapman FW, Lank P, Hart AA, Koster RW. A prospective, randomised and blinded comparison of first shock success of monophasic and biphasic waveforms in out-of-hospital cardiac arrest. *Resuscitation* 2003;58:17-24.
- Schneider T, Martens PR, Paschen H, et al. Multicenter, randomized, controlled trial of 150-J biphasic shocks compared with 200- to 360-J monophasic shocks in the resuscitation of out-of-hospital cardiac arrest victims. Optimized Response to Cardiac Arrest (ORCA) Investigators. *Circulation* 2000;102:1780-7.
- Martens PR, Russell JK, Wolcke B, et al. Optimal Response to Cardiac Arrest study: defibrillation waveform effects. *Resuscitation* 2001;49:233-43.
- Stothert JC, Hatcher TS, Gupton CL, Love JE, Brewer JE. Rectilinear biphasic waveform defibrillation of out-of-hospital cardiac arrest. *Prehosp Emerg Care* 2004;8:388-92.
- Carpenter J, Rea TD, Murray JA, Kudenchuk PJ, Eisenberg MS. Defibrillation waveform and post-shock rhythm in outof-hospital ventricular fibrillation cardiac arrest. *Resuscitation* 2003;59:189-96.
- Faddy SC, Powell J, Craig JC. Biphasic and monophasic shocks for transthoracic defibrillation: A meta analysis of randomised controlled trials. *Resuscitation* 2003;58:9-16.
- Walsh SJ, McClelland AJ, Owens CG, et al. Efficacy of distinct energy delivery protocols comparing two biphasic defibrillators for cardiac arrest. *Am J Cardiol* 2004;94:378-80.



RCP del Adulto

- Gliner BE, Lyster TE, Dillion SM, Bardy GH. Transthoracic defibrillation of swine with monophasic and biphasic waveforms. *Circulation* 1995;92:1634-43.
- White RD, Russell JK. Refibrillation, resuscitation and survival in out-of-hospital sudden cardiac arrest victims treated with biphasic automated external defibrillators. *Resuscitation* 2002;55:17-23.
- Bain AC, Swerdlow CD, Love CJ, et al. Multicenter study of principles-based waveforms for external defibrillation. *Ann Emerg Med* 2001;37:5-12.
- Bardy GH, Gliner BE, Kudenchuk PJ, et al. Truncated biphasic pulses for transthoracic defibrillation. *Circulation* 1995;91:1768-74.
- Bardy GH, Marchlinski F, Sharma A, et al. Multicenter comparison of truncated biphasic shocks and standard damped sine wave monophasic shocks for transthoracic ventricular fibrillation. *Circulation* 1996;94:2507-14.
- Greene HL, DiMarco JP, Kudenchuk PJ, et al. Comparison of monophasic and biphasic defibrillating pulse waveforms for transthoracic cardioversion. *Biphasic Waveform Defibrillation Investigators. Am J Cardiol* 1995;75:1135-9.
- Higgins SL, Herre JM, Epstein AE, et al. A comparison of biphasic and monophasic shocks for external defibrillation. *Physio-Control Biphasic Investigators. Prehosp Emerg Care* 2000;4:305-13.
- Higgins SL, O'Grady SG, Banville I, et al. Efficacy of lower-energy biphasic shocks for transthoracic defibrillation: a follow-up clinical study. *Prehosp Emerg Care* 2004;8:262-7.
- Mittal S, Ayati S, Stein KM, et al. Comparison of a novel rectilinear biphasic waveform with a damped sine wave monophasic waveform for transthoracic ventricular defibrillation. *ZOLL Investigators. J Am Coll Cardiol* 1999;34:1595-601.
- Weaver WD, Cobb LA, Copass MK, Hallstrom AP. Ventricular defibrillation: a comparative trial using 175-J and 320-J shocks. *N Engl J Med* 1982;307:1101-6.
- Tang W, Weil MH, Sun S, et al. The effects of biphasic and conventional monophasic defibrillation on postresuscitation myocardial function. *J Am Coll Cardiol* 1999;34:815-22.
- Morgan JP, Hearne SF, Raizes GS, White RD, Giuliani ER. High-energy versus low-energy defibrillation: experience in patients (excluding those in the intensive care unit) at Mayo Clinic-affiliated hospitals. *Mayo Clin Proc* 1984;59:829-34.
- Joglar JA, Hamdan MH, Ramaswamy K, et al. Initial energy for elective external cardioversion of persistent atrial fibrillation. *Am J Cardiol* 2000;86:348-50.
- Gliner BE, Jorgenson DB, Poole JE, et al. Treatment of outof-hospital cardiac arrest with a low-energy impedancecompensating biphasic waveform automatic external defibrillator. *The LIFE Investigators. Biomed Instrum Technol* 1998;32:631-44.
- White RD, Blackwell TH, Russell JK, Snyder DE, Jorgenson DB. Transthoracic impedance does not affect defibrillation, resuscitation or survival in patients with out-of-hospital cardiac arrest treated with a non-escalating biphasic waveform defibrillator. *Resuscitation* 2005;64:63-9.



RCP del Adulto

SEGURIDAD

- Mannis MJ, Wendel RT. Transmission of herpes simplex during cardiopulmonary resuscitation training. *Compr Ther* 1984;10:15-7.
- Mejicano GC, Maki DG. Infections acquired during cardiopulmonary resuscitation: estimating the risk and defining strategies for prevention. *Ann Intern Med* 1998;129:813-28.
- Glaser JB, Nadler JP. Hepatitis B virus in a cardiopulmonary resuscitation training course Risk of transmission from a surface antigen-positive participant. *Arch Intern Med* 1985;145:1653-5.
- Neiman R.P ost manikin resuscitation stomatitis. *J Ky Med Assoc* 1982;80:813-4.
- Nicklin G. Manikin tracheitis. *JAMA* 1980;244:2046-7.
- Greenberg M. CPR: a report of observed medical complications during training. *Ann Emerg Med* 1983;12:194-5.
- Memon AM, Salzer JE, Hillman Jr EC, Marshall CL. Fatal myocardial infarct following CPR training: the question of risk. *Ann Emerg Med* 1982;11:322-3.
- Salzer J, Marshall C, Hillman EJ, Bullock J. CPR: A report of observed medical complications during training. *Ann Emerg Med* 1983;12:195.
- Hudson AD. Herpes simplex virus and CPR training manikins: reducing the risk of cross-infection. *Ann Emerg Med* 1984;13:1108—10.
- Cavagnolo RZ. Inactivation of herpesvirus on CPR manikins utilizing a currently recommended disinfecting procedure. *Infect Control* 1985;6:456-8.
- Heilman KM, Muschenheim C. Primary cutaneous tuberculosis resulting from mouth-to-mouth respiration. *N Engl J Med* 1965;273:1035-6.
- Christian MD, Loutfy M, McDonald LC, et al. Possible SARS coronavirus transmission during cardiopulmonary resuscitation. *Emerg Infect Dis* 2004;10:287-93.
- Axelsson A, Herlitz J, Ekstrom L, Holmberg S. Bystanderinitiated cardiopulmonary resuscitation out-of-hospital A first description of the bystanders and their experiences. *Resuscitation* 1996;33:3-11.
- Axelsson A, Herlitz J, Karlsson T, et al. Factors surrounding cardiopulmonary resuscitation influencing bystanders' psychological reactions. *Resuscitation* 1998;37:13-20.
- Gamble M. A debriefing approach to dealing with the stress of CPR attempts. *Prof Nurse* 2001;17:157-60.
- Laws T. Examining critical care nurses' critical incident stress after in hospital cardiopulmonary resuscitation (CPR). *Aust Crit Care* 2001;14:76-81.
- Swanson RW. Psychological issues in CPR. *Ann Emerg Med* 1993;22:350-3.
- Cydulka RK, Connor PJ, Myers TF, Pavza G, Parker M. Prevention of oral bacterial flora transmission by using mouth-to-mask ventilation during CPR. *J Emerg Med* 1991;9:317-21.
- Blenkharn JI, Buckingham SE, Zideman DA. Prevention of transmission of infection during mouth-to-mouth resuscitation. *Resuscitation* 1990;19:151-7.
- Berumen Jr U. Dog poisons man. *JAMA* 1983;249:353.
- Koksai N, Buyukbese MA, Guven A, Cetinkaya A, Hasanoglu HC. Organophosphate intoxication as a consequence of mouth-to-mouth breathing from an affected case. *Chest* 2002;122:740-1.
- Black CJ, Busuttill A, Robertson C. Chest wall injuries following cardiopulmonary resuscitation. *Resuscitation* 2004;63:339-43.
- Baubin M, Sumann G, Rabl W, Eibl G, Wenzel V, Mair P. Increased frequency of thorax injuries with ACD-CPR. *Resuscitation* 1999;41:33-8.
- Hoke RS, Chamberlain D. Skeletal chest injuries secondary to cardiopulmonary resuscitation. *Resuscitation* 2004;63:327-38.