

References

- Angelos, M. G., Butke, R. L., Panchal, A. R., Torres, C. A., Blumberg, A., Schneider, J. E., & Aune, S. E. (2008). Cardiovascular response to epinephrine varies with increasing duration of cardiac arrest. *Resuscitation*, *77*(1), 101-110. doi:10.1016/j.resuscitation.2007.10.017
- Atiksawedparit, P., Rattanasiri, S., McEvoy, M., Graham, C. A., Sittichanbuncha, Y., & Thakkinstian, A. (2014). Effects of prehospital adrenaline administration on out-of-hospital cardiac arrest outcomes: a systematic review and meta-analysis. *Crit Care*, *18*(4), 463. doi:10.1186/s13054-014-0463-7
- Atwood, C., Eisenberg, M. S., Herlitz, J., & Rea, T. D. (2005). Incidence of EMS-treated out-of-hospital cardiac arrest in Europe. *Resuscitation*, *67*(1), 75-80. doi:10.1016/j.resuscitation.2005.03.021
- Austin, P. C. (2007). Propensity-score matching in the cardiovascular surgery literature from 2004 to 2006: a systematic review and suggestions for improvement. *The Journal of thoracic and cardiovascular surgery*, *134*(5), 1128-1135. e1123.
- Austin, P. C. (2011). An introduction to propensity score methods for reducing the effects of confounding in observational studies. *Multivariate behavioral research*, *46*(3), 399-424.
- Callaway, C. W. (2012). Questioning the use of epinephrine to treat cardiac arrest. *JAMA*, *307*(11), 1198-1200. doi:10.1001/jama.2012.313
- Cantrell, C. L., Jr., Hubble, M. W., & Richards, M. E. (2013). Impact of delayed and infrequent administration of vasopressors on return of spontaneous circulation during out-of-hospital cardiac arrest. *Prehosp Emerg Care*, *17*(1), 15-22. doi:10.3109/10903127.2012.702193
- Cao, L., Weil, M. H., Sun, S., & Tang, W. (2003). Vasopressor agents for cardiopulmonary resuscitation. *J Cardiovasc Pharmacol Ther*, *8*(2), 115-121. doi:10.1177/107424840300800204
- Changes in treatments and outcomes among elderly patients with out-of-hospital cardiac arrest between 2002 and 2012: A post hoc

- analysis of the SOS-KANTO 2002 and 2012. (2015). *Resuscitation*, 97, 76-82. doi:10.1016/j.resuscitation.2015.09.379
- Council, J. R. (2015). JRC resuscitation guideline. Chaper2. ALS JRC resuscitation guideline 2015 online version. . Retrieved from <http://www.japanresuscitationcouncil.org/wp-content/uploads/2016/04/0e5445d84c8c2a31aaa17db0a9c67b76.pdf>
- Cummins, R. O., Chamberlain, D. A., Abramson, N. S., Allen, M., Baskett, P. J., Becker, L., . . . et al. (1991). Recommended guidelines for uniform reporting of data from out-of-hospital cardiac arrest: the Utstein Style. A statement for health professionals from a task force of the American Heart Association, the European Resuscitation Council, the Heart and Stroke Foundation of Canada, and the Australian Resuscitation Council. *Circulation*, 84(2), 960-975.
- Ditchey, R. V., & Lindenfeld, J. (1988). Failure of epinephrine to improve the balance between myocardial oxygen supply and demand during closed-chest resuscitation in dogs. *Circulation*, 78(2), 382-389.
- Dumas, F., Bougouin, W., Geri, G., Lamhaut, L., Bougle, A., Daviaud, F., . . . Cariou, A. (2014). Is epinephrine during cardiac arrest associated with worse outcomes in resuscitated patients? *J Am Coll Cardiol*, 64(22), 2360-2367. doi:10.1016/j.jacc.2014.09.036
- Ewy, G. A., Bobrow, B. J., Chikani, V., Sanders, A. B., Otto, C. W., Spaite, D. W., & Kern, K. B. (2015). The time dependent association of adrenaline administration and survival from out-of-hospital cardiac arrest. *Resuscitation*, 96, 180-185. doi:10.1016/j.resuscitation.2015.08.011
- Fries, M., Weil, M. H., Chang, Y. T., Castillo, C., & Tang, W. (2006). Microcirculation during cardiac arrest and resuscitation. *Crit Care Med*, 34(12 Suppl), S454-457. doi:10.1097/01.ccm.0000247717.81480.b2
- Fukuda, T., Ohashi-Fukuda, N., Matsubara, T., Gunshin, M., Kondo, Y., & Yahagi, N. (2016). Effect of prehospital epinephrine on out-of-hospital cardiac arrest: a report from the national out-of-hospital cardiac arrest data registry in Japan, 2011-2012. *Eur J Clin Pharmacol*,

- 72(10), 1255-1264. doi:10.1007/s00228-016-2093-2
- Goto, Y., Maeda, T., & Goto, Y. (2013). Effects of prehospital epinephrine during out-of-hospital cardiac arrest with initial non-shockable rhythm: an observational cohort study. *Crit Care*, 17(5), R188. doi:10.1186/cc12872
- Hagihara, A., Hasegawa, M., Abe, T., Nagata, T., Wakata, Y., & Miyazaki, S. (2012). Prehospital epinephrine use and survival among patients with out-of-hospital cardiac arrest. *JAMA*, 307(11), 1161-1168. doi:10.1001/jama.2012.294
- Hayashi, Y., Iwami, T., Kitamura, T., Nishiuchi, T., Kajino, K., Sakai, T., . . . Kai, T. (2012). Impact of early intravenous epinephrine administration on outcomes following out-of-hospital cardiac arrest. *Circ J*, 76(7), 1639-1645.
- Homma, Y., Shiga, T., Funakoshi, H., Miyazaki, D., Sakurai, A., Tahara, Y., . . . Group, S.-K. S. (2018). Association of the time to first epinephrine administration and outcomes in out-of-hospital cardiac arrest: SOS-KANTO 2012 study. *Am J Emerg Med*. doi:10.1016/j.ajem.2018.05.037
- Hubble, M. W., & Tyson, C. (2017). Impact of Early Vasopressor Administration on Neurological Outcomes after Prolonged Out-of-Hospital Cardiac Arrest. *Prehosp Disaster Med*, 1-8. doi:10.1017/s1049023x17000115
- Imai, K., & Ratkovic, M. (2014). Covariate balancing propensity score. *Journal of the Royal Statistical Society: Series B (Statistical Methodology)*, 76(1), 243-263.
- Jacobs, I., Nadkarni, V., Bahr, J., Berg, R. A., Billi, J. E., Bossaert, L., . . . Zideman, D. (2004). Cardiac arrest and cardiopulmonary resuscitation outcome reports: update and simplification of the Utstein templates for resuscitation registries: a statement for healthcare professionals from a task force of the International Liaison Committee on Resuscitation (American Heart Association, European Resuscitation Council, Australian Resuscitation Council, New Zealand Resuscitation Council, Heart and Stroke Foundation of Canada,

- InterAmerican Heart Foundation, Resuscitation Councils of Southern Africa). *Circulation*, 110(21), 3385-3397. doi:10.1161/01.cir.0000147236.85306.15
- Jacobs, I. G., Finn, J. C., Jelinek, G. A., Oxer, H. F., & Thompson, P. L. (2011). Effect of adrenaline on survival in out-of-hospital cardiac arrest: A randomised double-blind placebo-controlled trial. *Resuscitation*, 82(9), 1138-1143. doi:10.1016/j.resuscitation.2011.06.029
- Kitamura, T., Iwami, T., Atsumi, T., Endo, T., Kanna, T., Kuroda, Y., . . . M. (2018). The profile of Japanese Association for Acute Medicine - out-of-hospital cardiac arrest registry in 2014-2015. *Acute Med Surg*, 5(3), 249-258. doi:10.1002/ams2.340
- Koscik, C., Pinawin, A., McGovern, H., Allen, D., Media, D. E., Ferguson, T., . . . Swor, R. (2013). Rapid epinephrine administration improves early outcomes in out-of-hospital cardiac arrest. *Resuscitation*, 84(7), 915-920. doi:10.1016/j.resuscitation.2013.03.023
- Link, M. S., Berkow, L. C., Kudenchuk, P. J., Halperin, H. R., Hess, E. P., Moitra, V. K., . . . Donnino, M. W. (2015). Part 7: Adult Advanced Cardiovascular Life Support: 2015 American Heart Association Guidelines Update for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. *Circulation*, 132(18 Suppl 2), S444-464. doi:10.1161/cir.0000000000000261
- Loomba, R. S., Nijhawan, K., Aggarwal, S., & Arora, R. R. (2015). Increased return of spontaneous circulation at the expense of neurologic outcomes: Is prehospital epinephrine for out-of-hospital cardiac arrest really worth it? *J Crit Care*, 30(6), 1376-1381. doi:10.1016/j.jcrc.2015.08.016
- Lopez, M. J., & Gutman, R. (2017). Estimation of causal effects with multiple treatments: a review and new ideas. *Statistical Science*, 32(3), 432-454.
- Nakahara, S., Tomio, J., Nishida, M., Morimura, N., Ichikawa, M., & Sakamoto, T. (2012). Association between timing of epinephrine administration and intact neurologic survival following out-of-hospital

- cardiac arrest in Japan: a population-based prospective observational study. *Acad Emerg Med*, 19(7), 782-792. doi:10.1111/j.1553-2712.2012.01387.x
- Nakahara, S., Tomio, J., Takahashi, H., Ichikawa, M., Nishida, M., Morimura, N., & Sakamoto, T. (2013). Evaluation of pre-hospital administration of adrenaline (epinephrine) by emergency medical services for patients with out of hospital cardiac arrest in Japan: controlled propensity matched retrospective cohort study. *BMJ*, 347, f6829. doi:10.1136/bmj.f6829
- Nichol, G., Thomas, E., Callaway, C. W., Hedges, J., Powell, J. L., Aufderheide, T. P., . . . Stiell, I. (2008). Regional variation in out-of-hospital cardiac arrest incidence and outcome. *JAMA*, 300(12), 1423-1431. doi:10.1001/jama.300.12.1423
- Niemann, J. T., Haynes, K. S., Garner, D., Rennie, C. J., 3rd, Jagels, G., & Stormo, O. (1986). Postcountershock pulseless rhythms: response to CPR, artificial cardiac pacing, and adrenergic agonists. *Ann Emerg Med*, 15(2), 112-120.
- Normand, S.-L. T., Landrum, M. B., Guadagnoli, E., Ayanian, J. Z., Ryan, T. J., Cleary, P. D., & McNeil, B. J. (2001). Validating recommendations for coronary angiography following acute myocardial infarction in the elderly: a matched analysis using propensity scores. *Journal of clinical epidemiology*, 54(4), 387-398.
- Olasveengen, T. M., Sunde, K., Brunborg, C., Thowsen, J., Steen, P. A., & Wik, L. (2009). Intravenous drug administration during out-of-hospital cardiac arrest: a randomized trial. *JAMA*, 302(20), 2222-2229. doi:10.1001/jama.2009.1729
- Olasveengen, T. M., Wik, L., Sunde, K., & Steen, P. A. (2012). Outcome when adrenaline (epinephrine) was actually given vs. not given - post hoc analysis of a randomized clinical trial. *Resuscitation*, 83(3), 327-332. doi:10.1016/j.resuscitation.2011.11.011
- Perkins, G. D., Cottrell, P., & Gates, S. (2014). Is adrenaline safe and effective as a treatment for out of hospital cardiac arrest? *BMJ*, 348, g2435. doi:10.1136/bmj.g2435

- Perkins, G. D., Ji, C., Deakin, C. D., Quinn, T., Nolan, J. P., Scopin, C., . . . Collaborators, P. (2018). A Randomized Trial of Epinephrine in Out-of-Hospital Cardiac Arrest. *N Engl J Med*, *379*(8), 711-721. doi:10.1056/NEJMoa1806842
- R Core Team. (2018). R: A language and environment for statistical computing. Vienna, Austria: R Foundation for Statistical Computing. Retrieved from <https://www.r-project.org/>.
- Ristagno, G., Tang, W., Huang, L., Fymat, A., Chang, Y. T., Sun, S., . . . Weil, M. H. (2009). Epinephrine reduces cerebral perfusion during cardiopulmonary resuscitation. *Crit Care Med*, *37*(4), 1408-1415. doi:10.1097/CCM.0b013e31819cedc9
- Rosenbaum, P. R., & Rubin, D. B. (1983). The central role of the propensity score in observational studies for causal effects. *Biometrika*, *70*(1), 41-55.
- Soar, J., Nolan, J. P., Bottiger, B. W., Perkins, G. D., Lott, C., Carli, P., . . . Deakin, C. D. (2015). European Resuscitation Council Guidelines for Resuscitation 2015: Section 3. Adult advanced life support. *Resuscitation*, *95*, 100-147. doi:10.1016/j.resuscitation.2015.07.016
- Standards for cardiopulmonary resuscitation (CPR) and emergency cardiac care (ECC). 3. Advanced life support. (1974). *JAMA*, *227*(7), Suppl:852-860.
- STROBE statement--checklist of items that should be included in reports of observational studies (STROBE initiative). (2008). *Int J Public Health*, *53*(1), 3-4.
- Sunde, K., & Steen, P. A. (2012). The use of vasopressor agents during cardiopulmonary resuscitation. *Crit Care Clin*, *28*(2), 189-198. doi:10.1016/j.ccc.2011.10.014
- Tanaka, H., Takyu, H., Sagisaka, R., Ueta, H., Shirakawa, T., Kinoshi, T., . . . Ong Eng Hock, M. (2016). Favorable neurological outcomes by early epinephrine administration within 19 minutes after EMS call for out-of-hospital cardiac arrest patients. *Am J Emerg Med*, *34*(12), 2284-2290. doi:10.1016/j.ajem.2016.08.026
- Tang, W., Weil, M. H., Sun, S., Noc, M., Yang, L., & Gazmuri, R. J. (1995).

Epinephrine increases the severity of postresuscitation myocardial dysfunction. *Circulation*, 92(10), 3089-3093.