

## DAFTAR PUSTAKA

- Abdel-Hady, H., Nasef, N., Shabaan, A.E., & Nour, I., 2013. Patent ductus arteriosus in preterm infants: do we have the right answers? *Biomed Res. Int.* 2013: 676192. doi:10.1155/2013/676192
- Afiune, J.Y., Singer, J.M., & Leone, C.R., 2005. Echocardiographic post-neonatal progress of preterm neonates with patent ductus arteriosus. [Portuguese]rEvolucaoc ecocardiografica de recém-nascidos com persistencia do canal arterial. *J. Pediatr. (Rio. J).* 81: 454–460.
- Alagarsamy, S., Chhabra, M., Gudavalli, M., Nadroo, A.M., Sutija, V.G., & Yugrakh, D., 2005. Comparison of clinical criteria with echocardiographic findings in diagnosing PDA in preterm infants. *J. Perinat. Med.* 33: 161–164. doi:10.1515/JPM.2005.030
- Alderliesten, T., Lemmers, P.M.A., Baerts, W., Groenendaal, F., & Van Bel, F., 2015. Perfusion index in preterm infants during the first 3 days of life: Reference values and relation with clinical variables. *Neonatology* 107: 258–265. doi:10.1159/000370192
- Arlettaz, R., 2017. Echocardiographic Evaluation of Patent Ductus Arteriosus in Preterm Infants. *Front. Pediatr.* 5: 1–9. doi:10.3389/fped.2017.00147
- Balla, K.C., John, V., Suman Rao, P.N., & Varghese, K., 2016. Perfusion index-bedside diagnosis of hemodynamically significant patent ductus arteriosus. *J. Trop. Pediatr.* 62: 263–268. doi:10.1093/tropej/fmv086
- Benitz, W.E., 2016. Patent Ductus Arteriosus in Preterm Infants. *Pediatrics* 137: e20153730. doi:10.1542/peds.2015-3730
- Bernati, N., Nova, R., Tasli, J.M., & Theodorus, 2014. Risk factor for patent ductus arteriosus in preterm neonates. *Paediatr. Indones.* 54: 132–7. doi:10.14238/pi
- Bin-Nun, A., Mimouni, F.B., Fink, D., Sela, H., & Hammerman, C., 2016. Elevated Nucleated Red Blood Cells at Birth Predict Hemodynamically Significant Patent Ductus Arteriosus. *J. Pediatr.* 177: 313–315. doi:10.1016/j.jpeds.2016.07.005
- Bloom, B.M., Grundlingh, J., Bestwick, J.P., & Harris, T., 2014. The role of venous blood gas in the emergency department: A systematic review and meta-analysis. *Eur. J. Emerg. Med.* 21: 81–88. doi:10.1097/MEJ.0b013e32836437cf
- Celotto, A.C., Restini, C.B.A., Capellini, V.K., Bendhack, L.M., & Evora, P.R.B., 2011. Acidosis induces relaxation mediated by nitric oxide and potassium channels in rat thoracic aorta. *Eur. J. Pharmacol.* 656: 88–93. doi:10.1016/j.ejphar.2011.01.053
- Chen, Y.Y., Wang, H.P., Chang, J.T., Chiou, Y.H., Huang, Y.F., & Hsieh, K.S., 2014. Perinatal factors in patent ductus arteriosus in very low-birthweight infants. *Pediatr. Int.* 56: 72–76. doi:10.1111/ped.12199

- Chock, V.Y., Rose, L.A., Mante, J. V., & Pun, R., 2016. Near-infrared spectroscopy for detection of a significant patent ductus arteriosus. *Pediatr. Res.* 80: 675–680. doi:10.1038/pr.2016.148
- Condò, M., Evans, N., Bellù, R., & Kluckow, M., 2012. Echocardiographic assessment of ductal significance: Retrospective comparison of two methods. *Arch. Dis. Child. Fetal Neonatal Ed.* 97: 35–39. doi:10.1136/adc.2010.207233
- Crockett, S.L., Berger, C.D., Shelton, E.L., & Reese, J., 2018. Molecular and mechanical factors contributing to ductus arteriosus patency and closure. *Congenit. Heart Dis.* 1–6. doi:10.1111/chd.12714
- Davis, P., Roberts, R., & Schmidt, B., 1995. Precision and Accuracy of Clinical and Radiological Signs in Premature Infants at Risk of Patent Ductus Arteriosus. *Arch. Pediatr. Adolesc. Med.* 149: 1136–41.
- de Boode, W.P., Kluckow, M., McNamara, P.J., & Gupta, S., 2018. Role of neonatologist-performed echocardiography in the assessment and management of patent ductus arteriosus physiology in the newborn. *Semin. Fetal Neonatal Med.* 23: 292–297. doi:10.1016/j.siny.2018.03.007
- Deselina, B., Putra, S.T., & Suradi, R., 2004. Prevalence of patent ductus arteriosus in premature infants at the neonatal ward, Cipto Mangunkusumo Hospital, Jakarta. *Paediatr Indones* 44: 223–227.
- Deshpande, P., Baczynski, M., McNamara, P.J., & Jain, A., 2018. Patent ductus arteriosus: The physiology of transition. *Semin. Fetal Neonatal Med.* 23: 225–231. doi:10.1016/j.siny.2018.05.001
- Dix, L., Molenschot, M., Breur, J., De Vries, W., Vijlbrief, D., Groenendaal, F., et al., 2016. Cerebral oxygenation and echocardiographic parameters in preterm neonates with a patent ductus arteriosus: An observational study. *Arch. Dis. Child. Fetal Neonatal Ed.* 101: F520–F526. doi:10.1136/archdischild-2015-309192
- Du, J.F., Liu, T.T., & Wu, H., 2016. Risk factors for patent ductus arteriosus in early preterm infants: A case-control study. *Chinese J. Contemp. Pediatr.* 18: 15–19. doi:10.7499/j.issn.1008-8830.2016.01.004
- Edstedt Bonamy, A.K., Gudmundsdottir, A., Maier, R.F., Toome, L., Zeitlin, J., Bonet, M., et al., 2017. Patent Ductus Arteriosus Treatment in Very Preterm Infants: A European Population-Based Cohort Study (EPICE) on Variation and Outcomes. *Neonatology* 111: 367–375. doi:10.1159/000454798
- El Hajjar, M., Vaksman, G., Rakza, T., Kongolo, G., & Storme, L., 2005. Severity of the ductal shunt: A comparison of different markers. *Arch. Dis. Child. Fetal Neonatal Ed.* 90: 419–422. doi:10.1136/adc.2003.027698
- Engür, D., Deveci, M., & Türkmen, M.K., 2016. Early signs that predict later haemodynamically significant patent ductus arteriosus. *Cardiol. Young* 26: 439–445. doi:10.1017/S1047951115000372
- Evans, N., 2015. Preterm patent ductus arteriosus: Are we any closer to knowing

- when to treat? *Paediatr. Child Heal. (United Kingdom)* 25: 256–260.  
doi:10.1016/j.paed.2015.02.010
- Evans, N., 2012. Diagnosis of the Preterm Patent Ductus Arteriosus: Clinical Signs, Biomarkers, or Ultrasound? *Semin. Perinatol.* 36: 114–122.  
doi:10.1053/j.semperi.2011.09.021
- Evans, N., & Moorcraft, J., 1992. Effect of patency of the ductus arteriosus on blood pressure in very preterm infants. *Arch. Dis. Child.* 67: 1169–1173.  
doi:10.1136/ad.67.10\_Spec\_No.1169
- Fanaroff, A.A., Hack, M., & Walsh, M.C., 2003. The NICHD Neonatal Research Network: Changes in practice and outcomes during the first 15 years. *Semin. Perinatol.* 27: 281–287. doi:10.1016/S0146-0005(03)00055-7
- Farombi-Oghuvbu, I., Matthews, T., Mayne, P.D., Guerin, H., & Corcoran, J.D., 2008. N-terminal pro-B-type natriuretic peptide: A measure of significant patent ductus arteriosus. *Arch. Dis. Child. Fetal Neonatal Ed.* 93: 257–261.  
doi:10.1136/ad.2007.120691
- Farooqui, M.A., Elsayed, Y., Jeyaraman, M.M., Dingwall, O., Tagin, M., Zarychanski, R., et al., 2018. Pre-symptomatic targeted treatment of patent ductus arteriosus in preterm newborns: A systematic review and meta-analysis. *J. Neonatal. Perinatal. Med.* 1–7. doi:10.3233/NPM-17130
- Gomez-Pomar, E., Makhoul, M., Westgate, P.M., Ibonia, K.T., Patwardhan, A., Giannone, P.J., et al., 2017. Relationship between perfusion index and patent ductus arteriosus in preterm infants. *Pediatr. Res.* 81: 775–779.  
doi:10.1038/pr.2017.10
- Haksari, E.L., Lafeber, H.N., Hakimi, M., Pawirohartono, E.P., & Nyström, L., 2016. Reference curves of birth weight, length, and head circumference for gestational ages in Yogyakarta, Indonesia. *BMC Pediatr.* 16: 1–14.  
doi:10.1186/s12887-016-0728-1
- Han, U.J., Cho, H.J., Cho, Y.K., Choi, Y.Y., & Ma, J.S., 2011. Change in blood pressure and pulse pressure in preterm infants after treatment of patent ductus arteriosus with indomethacin. *Korean Circ. J.* 41: 203–208.  
doi:10.4070/kcj.2011.41.4.203
- Härkin, P., Marttila, R., Pokka, T., Saarela, T., & Hallman, M., 2018. Morbidities associated with patent ductus arteriosus in preterm infants. Nationwide cohort study. *J. Matern. Neonatal Med.* 31: 2576–2583.  
doi:10.1080/14767058.2017.1347921
- Harling, S., Hansen-Pupp, I., Baigi, A., & Pesonen, E., 2011. Echocardiographic prediction of patent ductus arteriosus in need of therapeutic intervention. *Acta Paediatr. Int. J. Paediatr.* 100: 231–235. doi:10.1111/j.1651-2227.2010.02027.x
- Hattori, K., Tsuchida, S., Tsukahara, H., Mayumi, M., Tanaka, T., Zhang, L., et al., 2002. Augmentation of NO-mediated vasodilation in metabolic acidosis. *Life*

*Sci.* 71: 1439–1447. doi:10.1016/S0024-3205(02)01914-8

- Heuchan, A.M., & Clyman, R.I., 2014. Managing the patent ductus arteriosus: Current treatment options. *Arch. Dis. Child. Fetal Neonatal Ed.* 99: 431–437. doi:10.1136/archdischild-2014-306176
- Inayat, I., Bany-Mohammed, F., Valencia, A., Tay, C., Jacinto V, J.V., A., et al., 2015. Antioxidants and Biomarkers of Oxidative Stress in Preterm Infants with Symptomatic Patent Ductus Arteriosus. *Am. J. Perinatol.* 32: 895–904.
- Iwashima, S., Satake, E., Uchiyama, H., Seki, K., & Ishikawa, T., 2018. Closure time of ductus arteriosus after birth based on survival analysis. *Early Hum. Dev.* 121: 37–43. doi:10.1016/j.earlhumdev.2018.05.003
- Jain, A., & Shah, P.S., 2015. Diagnosis, evaluation, and management of patent ductus arteriosus in preterm neonates. *JAMA Pediatr.* 169: 863–872. doi:10.1001/jamapediatrics.2015.0987
- Kahveci, H., Tayman, C., Laloğlu, F., Kavas, N., Ciftel, M., Yılmaz, O., et al., 2016. Relationship Between Hemodynamically Significant Ductus Arteriosus and Ischemia-Modified Albumin in Premature Infants. *Indian J. Clin. Biochem.* 31: 231–236. doi:10.1007/s12291-015-0523-z
- Karadag, N., Dilli, D., Zenciroglu, A., Aydin, B., Beken, S., & Okumus, N., 2014. Perfusion Index Variability in Preterm Infants Treated with Two Different Natural Surfactants for Respiratory Distress Syndrome. *Am. J. Perinatol.* 31: 1015–1022. doi:10.1055/s-0034-1370344
- Katheria, V., Poeltler, D.M., Brown, M.K., Hassen, K.O., Patel, D., Rich, W., et al., 2018. Early prediction of a significant patent ductus arteriosus in infants <32 weeks gestational age. *J. Neonatal. Perinatal. Med.* 11: 331–334. doi:10.3233/NPM-1771
- Kessler, U., Schulte, F., Cholewa, D., Nelle, M., Schaefer, S.C., Klimek, P.M., et al., 2016. Outcome in neonates with necrotizing enterocolitis and patent ductus arteriosus. *World J. Pediatr.* 12: 55–59. doi:10.1007/s12519-015-0059-6
- Khositseth, A., & Muangyod, N., 2013. Perfusion index as a diagnostic tool for patent ductus arteriosus in preterm infants. *Neonatology* 104: 250–254. doi:10.1159/000353862
- Kindler, A., Seipolt, B., Heilmann, A., Range, U., Rüdiger, M., & Hofmann, S.R., 2017. Development of a Diagnostic Clinical Score for Hemodynamically Significant Patent Ductus Arteriosus. *Front. Pediatr.* 5: 1–8. doi:10.3389/fped.2017.00280
- Kluckow, M., & Lemmers, P., 2018. Hemodynamic assessment of the patent ductus arteriosus: Beyond ultrasound. *Semin. Fetal Neonatal Med.* 23: 239–244. doi:10.1016/j.siny.2018.04.002
- Koch, J., Hensley, G., Roy, L., Brown, S., & Ramaciotti, C., 2006. Prevalence of Spontaneous Closure of the Ductus Arteriosus in Neonates at a Birth Weight of 1000 Grams or Less. *Pediatrics* 117: 1113–1121. doi:10.1542/peds.2005-

- Kriplani, D.S., Sethna, C.B., Leisman, D.E., & Schneider, J.B., 2016. Acute Kidney Injury in Neonates in the PICU. *Pediatr. Crit. Care Med.* 17: e159–e164. doi:10.1097/PCC.0000000000000668
- Kupferschmid, C., Lang, D., & Pohlandt, F., 1988. Sensitivity, specificity and predictive value of clinical findings, m-mode echocardiography and continuous-wave Doppler sonography in the diagnosis of symptomatic patent ductus arteriosus in preterm infants. *Eur. J. Pediatr.* 147: 279–282.
- Kwinta, P., Rudziński, A., Kruczek, P., Kordon, Z., & Pietrzyk, J.J., 2009. Can early echocardiographic findings predict patent ductus arteriosus? *Neonatology* 95: 141–148. doi:10.1159/000153098
- Lee, J.H., Greenberg, R.G., Quek, B.H., Clark, R.H., Laughon, M.M., Smith, P.B., et al., 2017. Association between early echocardiography, therapy for patent ductus arteriosus, and outcomes in very low birth weight infants. *Cardiol. Young* 27: 1732–1739. doi:10.1017/S1047951117001081
- Lee, J.H., Shin, J.H., Park, K.H., Rhie, Y.J., Park, M.S., & Choi, B.M., 2013. Can early b-type natriuretic peptide assays predict symptomatic patent ductus arteriosus in extremely low birth weight infants? *Neonatology* 103: 118–122. doi:10.1159/000343034
- Leirgul, E., Fomina, T., Brodwall, K., Greve, G., Holmstrøm, H., Vollset, S.E., et al., 2014. Birth prevalence of congenital heart defects in Norway 1994–2009 - A nationwide study. *Am. Heart J.* 168: 956–964. doi:10.1016/j.ahj.2014.07.030
- Madan, J.C., Kendrick, D., Hagadorn, J.I., & Frantz, I.D., 2009. Patent Ductus Arteriosus Therapy: Impact on Neonatal and 18-Month Outcome. *Pediatrics* 123: 674–681. doi:10.1542/peds.2007-2781
- Mezu-Ndubuisi, O., Agarwal, G., Raghavan, A., Pham, J., Ohler, K., & Maheswari, A., 2012. Patent ductus arteriosus in premature babies. *Drug* 72: 907–12. doi:10.1136/bmj.284.6309.115
- Mydam, J., Rastogi, A., & Naheed, Z.J., 2019. Base excess and hematocrit predict response to indomethacin in very low birth weight infants with patent ductus arteriosus. *Ital. J. Pediatr.* 45: 1–9. doi:10.1186/s13052-019-0706-y
- Ngo, S., Profit, J., Gould, J.B., & Lee, H.C., 2017. Trends in Patent Ductus Arteriosus Diagnosis and Management for Very Low Birth Weight Infants. *Pediatrics* 139: e20162390. doi:10.1542/peds.2016-2390
- Nltzan, I., Hammerman, C., Fink, D., & Nltzan, M., 2018. The effect of patent ductus arteriosus on pre-ductal and post-ductal perfusion index in preterm neonates. *Physiol. Meas* 39: 1–16. doi:10.1088/1361-6579/aacf25
- Okur, N., Tayman, C., Büyüktiryaki, M., Kadioğlu Şimşek, G., Ozer Bekmez, B., & Altuğ, N., 2018. Can lactate levels be used as a marker of patent ductus arteriosus in preterm babies? *J. Clin. Lab. Anal.* 1–5. doi:10.1002/jcla.22664



- Piasek, C.Z., Van Bel, F., & Sola, A., 2014. Perfusion index in newborn infants: A noninvasive tool for neonatal monitoring. *Acta Paediatr. Int. J. Paediatr.* 103: 468–473. doi:10.1111/apa.12574
- Polat, T.B., Celik, I.H., & Erdevi, O., 2016. Early predictive echocardiographic features of hemodynamically significant patent ductus arteriosus in preterm VLBW infants. *Pediatr. Int.* 58: 589–594. doi:10.1111/ped.12915
- Pourarian, S., Farahbakhsh, N., Sharma, D., Cheriki, S., & Bijanzadeh, F., 2017. Prevalence and risk factors associated with the patency of ductus arteriosus in premature neonates: a prospective observational study from Iran. *J. Matern. Neonatal Med.* 30: 1460–1464. doi:10.1080/14767058.2016.1219991
- Pourarian, S., Sharma, D., Cheriki, S., Bijanzadeh, F., Farahbakhsh, N., Ohlsson, A., et al., 2016. To evaluate the prevalence of symptomatic and non-symptomatic ductus arteriosus and accuracy of physical signs in diagnosing PDA in preterm infants using blinded comparison of clinical and echocardiographic findings during the first week of life: A prospe. *J. Matern. Neonatal Med.* 7058: 1–17. doi:10.1080/14767058.2016.1220532
- Prescott, S., & Keim-Malpass, J., 2017. Patent Ductus Arteriosus in the Preterm Infant: Diagnostic and Treatment Options. *Adv. Neonatal Care* 17: 10–18. doi:10.1097/ANC.0000000000000340
- Ratner, I., Perelmutter, B., Toews, W., & Whitfield, Jo., 1985. Association of low systolic and diastolic blood pressure with significant patent ductus arteriosus in very low birth weight infant. *Crit. Care Med.* 11: 497–500.
- Reller, M.D., Lore, J.M., Kotagal, U.R., Meyer, R.A., & Kapla, S., 1985. Hemodynamically Significant PDA: an Echocardiographic and Clinical Assessment of Incidence, Natural History, and Outcome in Very Low Birth Weight Infants Maintained in Negative Fluid Balance. *Pediatr Cardiol* 6: 17–23.
- Rozé, J.C., Cambonie, G., Marchand-Martin, L., Gournay, V., Durrmeyer, X., Durox, M., et al., 2015. Association between early screening for patent ductus arteriosus and in-hospital mortality among extremely preterm infants. *JAMA - J. Am. Med. Assoc.* 313: 2441–2448. doi:10.1001/jama.2015.6734
- Sanjeev, S., Pettersen, M., Lua, J., Thomas, R., Shankaran, S., L'Ecuyer, T., et al., 2005a. N-terminal pro-B-type natriuretic peptide: A measure of significant patent ductus arteriosus. *Arch. Dis. Child. Fetal Neonatal Ed.* 103: 709–713. doi:10.1159/000343034
- Sanjeev, S., Pettersen, M., Lua, J., Thomas, R., Shankaran, S., & L'Ecuyer, T., 2005b. Role of plasma B-type natriuretic peptide in screening for hemodynamically significant patent ductus arteriosus in preterm neonates. *J. Perinatol.* 25: 709–713. doi:10.1038/sj.jp.7211383
- Schena, F., Francescato, G., Cappelleri, A., Picciolli, I., Mayer, A., Mosca, F., et al., 2015. Association between hemodynamically significant patent ductus arteriosus and bronchopulmonary dysplasia. *J. Pediatr.* 166: 1488–1492.

doi:10.1016/j.jpeds.2015.03.012

- Schwarz, C.E., Preusche, A., Baden, W., Poets, C.F., & Franz, A.R., 2016. Repeatability of echocardiographic parameters to evaluate the hemodynamic relevance of patent ductus arteriosus in preterm infants: A prospective observational study. *BMC Pediatr.* 16: 1–5. doi:10.1186/s12887-016-0552-7
- Semberova, J., Sirc, J., Miletin, J., Kucera, J., Berka, I., Sebkova, S., et al., 2017. Spontaneous Closure of Patent Ductus Arteriosus in Infants  $\leq 1500$  g. *Pediatrics* 140: e20164258. doi:10.1542/peds.2016-4258
- Skelton, R., Evans, N., & Smythe, J., 1994. A blinded comparison of clinical and echocardiographic evaluation of the preterm infant for patent ductus arteriosus. *J. Paediatr. Child Health* 30: 406–411. doi:10.1111/j.1440-1754.1994.tb00689.x
- Steiner, M., Salzer-Muhar, U., Swoboda, V., Unterasinger, L., Baumgartner, S., Waldhoer, T., et al., 2015. Preterm infants who later require duct ligation show different vital signs and pH in early postnatal life. *Acta Paediatr. Int. J. Paediatr.* 104: e7–e13. doi:10.1111/apa.12814
- Teixeira, L.S., & Mcnamara, P.J., 2006. Enhanced intensive care for the neonatal ductus arteriosus. *Acta Paediatr. Int. J. Paediatr.* 95: 394–403. doi:10.1080/08035250500482271
- Thankavel, P.P., Rosenfeld, C.R., Christie, L., & Ramaciotti, C., 2013. Early echocardiographic prediction of ductal closure in neonates  $\leq 30$  weeks gestation. *J. Perinatol.* 33: 45–51. doi:10.1038/jp.2012.41
- Ting, J.Y., Resende, M., More, K., Nicholls, D., Weisz, D.E., EL-Khuffash, A., et al., 2016. Predictors of respiratory instability in neonates undergoing patent ductus arteriosus ligation after the introduction of targeted milrinone treatment. *J. Thorac. Cardiovasc. Surg.* 152: 498–504. doi:10.1016/j.jtcvs.2016.03.085
- Tschuppert, S., Doell, C., Arlettaz-Mieth, R., Baenziger, O., Rousson, V., Balmer, C., et al., 2008. The effect of ductal diameter on surgical and medical closure of patent ductus arteriosus in preterm neonates: Size matters. *J. Thorac. Cardiovasc. Surg.* 135: 78–82. doi:10.1016/j.jtcvs.2007.07.027
- Velazquez, D.M., Reidy, K.J., Sharma, M., Kim, M., Vega, M., & Havranek, T., 2018. The effect of hemodynamically significant patent ductus arteriosus on acute kidney injury and systemic hypertension in extremely low gestational age newborns. *J. Matern. Neonatal Med.* 0: 1–6. doi:10.1080/14767058.2018.1460349
- Yeh, T., Raval, D., Luken, J., Thalji, A., & Pildes, S., 1981. Clinical evaluation of premature infant with patent ductus arteriosus. *Crit. Care Med.* 9: 655–657.