

DAFTAR PUSTAKA

- Anggraeni, L.W., 2016. Studi perbandingan efektivitas penggunaan PEG 3350 dan bisakodil pada konstipasi yang diinduksi morfin. *Skripsi*. Universitas Airlangga.
- Banskota, S., Ghia. E. J., Khan. I. W., 2019. Serotonin in the gut: Blessing or a curse. *J Biochimie*, Vol 161: 56e64.
- Benyamin, R., Trescot, A. M., Datta, S., Buenaventura, R., Adlaka, R., Sehgal, N., Glaser, Scott E., and Vallejo, R., 2008. Opioid complications and side effect. *Pain Physician J*, pp.105-120.
- Berdanier D.C., 2012. Gastrointestinal system and metabolism in anatomy and normative biology. *The Laboratory of Mouse*, Vol.28.
- Bove, G., 2015. A non-invasive method to evaluate gastrointestinal transit behaviour in rat. *J Pharmacol Toxicol Methods*, Vol 74: 1–6.
- Castle, N.A., 2005. Aquaporins as targets for drug discovery. *Drug discovery today*, Vol 10(7), pp.485-493.
- Chou, R., Fanciullo, G., Fine, P., Adler, J., Ballantyne, J., Davies, P., 2009. Clinical guidelines for the use of chronic opioid therapy in chronic non-cancer pain. *J Pain*, Vol.10., p.113–130.
- Chu H, Hou X .2016. Understanding of Constipation Symptoms and the Diagnosis and Management of Constipation in Chinese Physicians. *PLoSONE*, Vol.11(3): e0152801.
- Crockett. S.D., Greer. K. B., Heidelbaugh. J.J., Falck-Ytte. Y., Hanson. B.J., Sultan. S., 2018. American Gastroenterological Association Institute Guideline on the Medical Management of Opioid-Induced Constipation. *J American Gastroenterological Association Institute Clinical Guidelines Committee Gastroenterology*, 1–9.

- Dalesio, N.M., Hendrix, C.W., McMichael, D.H., Thompson, C.B., Lee, C.K., Pho, H., Arias, R.S., Lynn, R.R., Galinkin, J., Yaster, M. and Brown, R.H., 2016. Effects of obesity and leptin deficiency on morphine pharmacokinetics in a mouse model. *Anesthesia & Analgesia*, 123(6), pp.1611-1617.
- Day, R., Kitchen, P., Owen, D.S., Bland, C., Marshall, L., Conner, C.A., Bill, M.R., Conner, M.T., 2013. Human aquaporins: Regulators of transcellular water flow. *Biochimica et Biophysica Acta*: <http://dx.doi.org/10.1016/j.bbagen.2013.09.033>.
- Despopoulos, A., Silbernag, S., 2003. *Color Atlas of Physiology*. 5th edition. New York: Thieme p.264.
- Dewoto, Hedi R. 2012. Analgesik Opioid dan Antagonis. Dalam Sulstiana Gan Gunawan. *Farmakologi dan Terapan Edisi 5*. Jakarta : Balai Penerbit FKUI. hal. 210-229.
- Farmer., Adam *et al.* 2019. Pathophysiology and management of opioid-induced constipation: European expert consensus statement. *United European Gastroenterology J*, Vol. 7(1), p.7–20.
- Foorotan, M., Bagheri. N., Darvishi, M., 2018. Chronic constipation. *J Medicine*, Vol.97:20.
- Fickel, J., Bagnol, D., Watson, S., Alkil, H., 1997. Opioid receptor expression in the rat gastrointestinal tract: a quantitative study with comparison to the brain, *Molecular Brain Research*, Vol 46:1–8.
- Fine, P., Mahajan, G., and McPherson, M., 2009. Long-acting opioids and short-acting opioids: appropriate use in chronic pain management. *Pain Med* 10: S79–S88.
- Frigeri A, *et al.* 2007. Aquaporins as targets for drug discovery. *Current Pharmaceutical Design*, 13(23) : 2421-7.

- Galligan, J., dan Akbarali, H., 2014. Molecular physiology of enteric opioid receptors. *American J of Gastroentology Supplements*, Vol.2: 17-21.
- Garafutdinov, R., Galimova.A.A., Sakhabutdinova.A.R., 2016. Polymerase chain reaction with nearby primers. *Analytical Biochemistry*. doi: 10.1016/j.ab.2016.11.017.
- Gregori, S.D., Minella, C.E., Gregori, M.D., *et al.* 2014. Clinical Pharmacokinetics of Morphine and Its Metabolites During Morphine Dose Titration for Chronic Cancer Pain. *Therapeutic Drug Monitoring*, Vol 36:335–344.
- Handoyo, D dan Rudiretna, A. 2001. *Prinsip Umum dan Pelaksanaan Polymerase Chain Reaction (PCR)*. Pusat Studi Bioteknologi Universitas Surabaya. Unitas, Vol. 9 No. 1, hal. 17-19.
- Holzer, P., 2009. Opioid receptors in the gastrointestinal tract. *Regul Pept*, Vol. 155, pp. 11–17.
- Hooten, W., Lamer, T., and Twyner, C., 2015. Opioid-induced hyperalgesia in community dwelling adults with chronic pain. *Pain* 156: 1145–1152.
- Ikarashi, N., Baba, K., Ushiki, T., Kon, R., Mimura, A., Toda, T., Ishii, M., Ochiai, W. and Sugiyama, K., 2011. The laxative effect of bisacodyl is attributable to decreased aquaporin3 expression in the colon induced by increased PGE2 secretion from macrophages. *American Journal of Physiology-Gastrointestinal and Liver Physiology*, 301(5), pp.G887-G895.
- Ikarashi, N., Kon, R., Iizasa, T., Suzuki, N., Hiruma, R., Suenaga, K., Toda, T., Ishii, M., Hoshino, M., Ochiai,W., *et al.*, 2012. Inhibition of aquaporin3 water channel in the colon induces diarrhea. *Biol. pharm. Bull.*, 35: 957–962.

- Ikarashi, N., Kon, R., & Sugiyama, K. 2016. Aquaporins in the Colon as a New Therapeutic Target in Diarrhea and Constipation. *International Journal of Molecular Sciences*, Vol. 17 No. 7, pp. 1172.
- Ishihara. M., Ikesue. H., Matsunaga. H., 2012. A multiinstitutional study analyzing effect of prophylactic medication for prevention of opioid-induced gastrointestinal dysfunction. *Clin J Pain*, 28: 373–381.
- Joshi, M. dan Deshpande, J.D., 2010. Polymerase Chain Reaction: Methods, Principles and Application. *International Journal of Biomedical Research*, Vol. 1, No. 5, pp. 81-97.
- Kang, M., Maguma. T. H., Smith. H. T., Ross, R. G., Dewey, L.W., Akbarali, I.H., 2011. The Role of beta-Arrestin2 in the Mechanism of Morphine Tolerance in the Mouse and Guinea Pig Gastrointestinal Tract. *The J of Pharmacology and Experimental Therapeutics*, vol. 340, no.3.
- Kienzle-Horn, S., VIX, J.M., Schuijt, C., Peil, H., Jordan, C.C. and Kamm, M.A., 2006. Efficacy and safety of bisacodyl in the acute treatment of constipation: a double-blind, randomized, placebo-controlled study. *Alimentary pharmacology & therapeutics*, 23(10), pp.1479-1488
- King, L. S., Kozono, D., Agre, P., 2004. From structure to disease: the evolving tale of aquaporin biology. *Nature Review Molecular Cell Biol*, Vol.5, p.687–698.
- Kohno. T., Kumamoto. E., Higashi. H., Shimoji. K., Yoshimura. M., 1999. Actions of opioids on excitatory and inhibitory transmission in substantia gelatinosa of adult rat spinal cord. *J Physiol*, Vol 518(Pt 3):803–813.
- Kon, R., Ikarashi, N., Hayakawa, A., et al. 2015. Morphine-Induced Constipation Develops With Increased Aquaporin3 Expression in the Colon via Increased Serotonin Secretion. *Toxicological Sciences*, Vol. 145 No. 2, pp. 337–347.

- Kumar. Lalit., Barker, Chris., Emmanuell, Anton., 2014. Opioid-Induced Constipation: Pathophysiology, Clinical Consequences, and Management. *Gastroenterology Research and Practice*, Volume 2014.
- Kurz, A., Sessler, D.I. 2003. Opioid-induced bowel dysfunction: pathophysiology and potential new therapies. *Drugs*, Vol. 63 No.7, pp. 649–671.
- Laforenza, U. 2012. Water channel proteins in the gastrointestinal tract. *Mol. Asp. Med*, Vol.33, p.642–650.
- Lang-Illievich, K., Bornemann-Ciment. H., 2019. Opioid-induced constipation: a narrative review of therapeutic options in clinical management. *Korean J Pain*, Vol. 32, No. 2: 69-78.
- Larkin, P.J., Sykes, N.P., Centeno, C., et al., 2008. The management of constipation in palliative care: clinical practice recommendations. *Palliat Med*, Vol.22:79.
- Li, Z., Yuan, W., Zhi, H., 2012. mRNA expression of aquaporin protein 1 and 7 in rat model of slow transit constipation (STC), *African Journal of Pharmacy and Pharmacology*, Vol. 6(36), pp. 2643-2645.
- Liang. C., Wang. K., Yu. Z., Xu. B., 2016. Development of a novel mouse constipation model. *World J Gastroenterol* 22(9): 2799–2810.
- Loo, D. D., Wright, E. M., and Zeuthen, T. (2002). Water pumps. *J. Physiol*, Vol.542, p.53–60.
- Lugo, R.A., and Kern, S.E. 2002. Clinical Pharmacokinetics of Morphine. *J of Pain & Palliative Care Pharmacotherapy*, Vol. 16(4) 2002.
- Maruyama, M., Kamimura. K., Sugita, M., Nakajima. N., Takahashi. Y., Isokawa. O., and Terai. S., 2019. The Management of Constipation: Current Status and Future Prospects. *Intechopen* 83467.

- Masyuk, A.I., Marinelli, R.A., LaRusso, N.F., 2002. Water transport by epithelia of the digestive tract. *Gastroenterology*, Vol 122, p. 545–562.
- Mescher, A. L. 2013. *Junqueira's Basic Histology Text and Atlas*, 13th Edition.. United States: McGraw-Hill Education.
- National Institute of Diabetes and Digestive and Kidney Disease. 2013. *National Digestive Disease Information Clearinghouse: Constipation*. NIH Publication No. 13–2754.
- Nelson, D.Alfred. and Cammilleri, Michael., 2016. Opioid-induced constipation: advances and clinical guidance. *Ther Adv Chronic Dis*, Vol. 7(2), p 121-134.
- NHS. 2018. Primary Care Constipation Guidelines. *Lancashire Medicines Management Group*.
- Ninkovic´, J., and Roy, S., 2011. Role of the mu-opioid receptor in opioid modulation of immune function. *Amino Acids*: doi: 10.1007/s00726-011-1163-0.
- Ono, H., Nakamura, A., Matsumoto, K., Horie, S., Sakaguchi, G., Kanemasa, T., 2014. Circular muscle contraction in the mice rectum plays a key role in morphine-induced constipation. *Neurogastroenterology and Motility*, Vol.26, p.1396-1407.
- Pathan, H and Williams, J. 2012. Basic opioid pharmacology: an update. *British Journal of Pain*, Vol.6(1), p. 11–16.
- Ponti, D. F., 2004. Pharmacology of serotonin: what a clinician should know. *Gut*, Vol.53, p.1520–1535.
- Portalatin. M., Winstead. N., 2012. Medical Management of Constipation. *Clin Colon Rectal Surg*, Vol.25, p.12–19.
- Raehal K,M, Walker JK, Bohn L,M. 2005. Morphine side effects in beta-arrestin 2 knockout mice. *J Pharmacol Exp Ther*, Vol.314: 1195–20.

- Rahayu, P.L., 2019. Pengaruh bisakodil terhadap ekspresi transporter aquaporin3, aquaporin4 dan ppar γ pada konstipasi yang diinduksi morfin. *Skripsi*. Universitas Airlangga.
- Rose, C., Parker, A., Jefferson, B. and Cartmell, E., 2015. The characterization of feces and urine: a review of the literature to inform advanced treatment technology. *Critical reviews in environmental science and technology*, 45(17), pp.1827-1879.
- Schumacher, P.M., Basbaum, P.A., & Way, M.W., 2013. Analgesik Opioid dan Antagonisnya. Dalam B.G. Katzung, *Farmakologi Dasar & Klinik*, edisi 12. Diterjemahkan oleh Brahm U. Pendit. Jakarta: Penerbit buku Kedokteran EGC. Hal 609-629.
- Shargel, L., Andrew. B.C.Yu, Sussanna. W.U., 2012. *Applied Biopharmaceutics and Pharmacokinetics*, 7th edition. New york : McGraw-Hill Companies.
- Silbernagl. S., and Lang. F., 2016. *Color Atlas of Pathophysiology*. 3rd edition. New York: Thieme p. 168-169.
- Siswandono., dan Widiandani. T., 2016. Hubungan struktur-aktivitas obat analgesika. *In: Siswandono (Eds.). Kimia Medisinal 2*. Edisi ke-2, Surabaya: Airlangga.
- Sykes N. 1998. The relationship between opioid use and laxative use in terminally ill cancer patients. *Palliat Med*, 12:375e382.
- Twycross, R., *et al.* 2012. Stimulant laxatives and opioid induces constipation. *J of Pain and Symptom Management*, Vol 43 No.2.
- Twycross R.G., Lack S.A., 1986. Control of alimentary symptoms in far advanced cancer. Edinburgh: Churchill Livingstone, 173e174.
- Vahedi, H.S.M., Hajebi, H., Vahidi, E., Nejati, A. and Saedi, M., 2019. Comparison between intravenous morphine versus fentanyl in acute

- pain relief in drug abusers with acute limb traumatic injury. *World journal of emergency medicine*, 10(1), p.27.
- Waldhoer. M., Bartlett. SE., Whistler. JL., 2004. Opioid receptors. *Review Biochem*, Vol.73, p. 953–990.
- Wang, K.S., Ma, T., Filiz, F., Verkman, A.S., Bastidas, J.A., 2000. Colon water transport in transgenic mice lacking aquaporin4 water channels. *Am. J. Physiol. Gastrointest Liver Physiol*, Vol.279, hal. 334-337.
- WHO Expert Committee on Cancer Pain Relief and Active Supportive Care & World Health Organization. 2015. *Cancer Pain Relief and Palliative Care: Report of a WHO Expert Committee*. Geneva: World Health Organization.
- Wong, B., Rao, A., Camilleri, M., Manabe, N., McKinzie, S., Busciglio, I. *et al.* 2010. The effects of methylnaltrexone alone and in combination with acutely administered codeine on gastrointestinal and colonic transit in health. *Aliment Pharmacol Ther*, Vol. 32, p.884–893.
- Wood, JD., and Galligan, JJ., 2004. Function of opioids in the enteric nervous system. *Neurogastroenterol Motil*, Vol.16, p.17–28.
- Yin, J. *et al.*, 2018. Naringenin induces laxative effects by upregulating the expression levels of c-Kit and SCF, as well as those of aquaporin 3 in mice with loperamide-induced constipation. *International J of Molecular Medicine*, Vol.41, p.649-658.