



## DAFTAR PUSTAKA

- Affas, F., 2016. Local Infiltration Analgesia in Knee and Hip Arthroplasty Efficacy and Safety. *Scand. J. Pain* **13**, 59–66.
- Aitken, H., Burns, J., and McArdle, C., Kenny, G., 2000. Effects of Ketorolac Tromethamine on Renal Function. *Br. J. Anaesth.* **28** (1), 38–42.
- Alomar, M.J., 2013. Factors Affecting the Development of Adverse Drug Reactions ( Review Article ). *Saudi Pharm. J.* **30**, 1–12.
- Ang, P., Knight, H., Matadial, C., Pagan, A., Curty, R., Nieves, C.S., Et, Al., 2004. Managing Acute Postoperative Pain : Is 3 Hours Too Long ? *J. og Anesth. Nurs.* **19** (5), 312–333.
- Berry, P.H., Chapman, C.R., Covington, E.C., Dahl, J.L., Katz, J.A., Miaskowski, C., Et al., 2001. Pain: *Current Undergoing of Assessment, Management, and Treatments*. National Pharmaceutical Council, Virginia, p. 11.
- Bijur, P.E., Silver, W., and Gallagher, E.J., 2001. Reliability of The Visual Analog Scale For Measurement of Acute Pain. *Acad. Emerg. Med.* **8** (12), 1153–1157.
- Buvanendran, A., Kroin, J.S., Valle, C.J. Della, Moric, M., and Tuman, K.J., 2016. Local Drug Infiltration Analgesia during Knee Surgery to Reduce Postoperative Pain in Rats. *Reg. Anesth. Pain Medicine* **41** (3), 374–379.
- Catapano, M.S., 1996. Pharmacology of Emergency Medicine The Analgesic Efficacy of Ketorolac for Acute Pain. *journl Emerg. Med.* **14** (1), 67–75.
- Chauhan, R.D., Idom, C.B., Noe, H.N., 2001. Safety of Ketorolac in The Pediatric Population After Ureteroneocystostomy. *J. Urol.* **166** (5), 1873–1875.
- Chou, R., Gordon, D.B., De Leon-Casasola, O.A., Rosenberg, J.M., Bickler, S., Brennan, T., Carter, T., Cassidy, C.L., Chittenden, E.H., Degenhardt, E., Griffith, S., Manworren, R., Et al., 2016. Guidelines on the Management of Postoperative Pain Management. *J. Pain* **17** (2), 131–157.
- Coleman, J.J., and Sarah, K.P., 2016. Adverse Drug Reactions. *C. Clin. Pharmacol.* **16** (5), 481–485.
- DeLoach, L.J., Higgins, M.S., Caplan, A.B., and Stiff, J.L., 1998. The Visual Analog Scale in The Immediate Postoperative Period: Intrasubject Variability and Correlation with A Numeric Scale. *Anesth. Analg.* **86** (1), 102–106.
- Doherty, M.J., 2009. Algorithms for Assessing The Probability of An Adverse Drug Reaction. *Respir. Med. CME* **2** (2), 63–67.
- Eckmann, M.S., Ramamurthy, S., Griffin, J.G., 2011. Intravenous Regional Ketorolac and Lidocaine in the Treatment of Complex Regional Pain Syndrome of the Lower Extremity: A Randomized, Double-blinded, Crossover Study. *Clin J Pain* **27** (3), 203–206.



- Edward, I.R., and Aronson, J.K., 2000. Treatment of Pain. *Lancet* **356**, 1255–1259.
- Feldman, H.I., Kinman, J.L., Berlin, J.A., Hennessy, S., Kimmel, S.E., Et al., 1997. Parenteral Ketorolac: The Risk for Acute Renal Failure. *Ann. Intern. Med.* **126** (3), 193–199.
- Ferreira, V.M.A., Pais, R.J.L., Jensen, M.P., 2011. Validity of Four Pain Intensity Rating Scales. *Pain* **152** (10), 2399–2404.
- Fiedler, A.M., 1997. Clinical Implications of Ketorolac for Postoperative Analgesia. *J. PeriAnesthesia Nurs.* **12** (6), 426–433.
- Fine, P.G., Lesage, P., Lippe, P.M., Lipman, A.G., Follet, K.A., Fishman, S.M., Et al., 2012. Pathophysiology of Pain and Pain Assessment Module 1 Pain Management. *AMA* **7**, 1–12.
- Forrest, J.B., Camu, F., Greer, I.A., Kehlet, H., Abdalla, M., Bonnet, F., And Ebrahim, S., 2002. Ketorolac , Diclofenac , and Ketoprofen are Equally Safe for Pain Relief After Major Surgery. *Br. J. Anesthesia* **88** (2), 227–233.
- Freedland, S.J., Blanco-Yarosh, M., Sun, J.C., Hale, S.J., Elashoff, D.A., Rajfer, J., Gritsch, H.A., 2002. Effect of Ketorolac on Renal Function After Donor Nephrectomy. *Urology* **59** (6), 826–830.
- Gan, T.J., Daniels, S.E., Singla, N., Hamilton, D.A., Carr, D.B., Et, A., 2012. A Novel Injectable Formulation of Diclofenac Compared with Intravenous Ketorolac or Placebo for Acute Moderate-to-Severe Pain After Abdominal or Pelvic Surgery: A Multicenter, Double-Blind, Randomized, Multiple-Dose Study. *Anesth. Analg.* **115** (5), 1212–1220.
- Gerbershagen, H.J., Aduckathil, S., Peelen, L.M., Kalkman, C.J., Meissner, W., 2013. Pain Intensity on the First Day after Surgery. *Anesthesiology* **118** (4), 934–944.
- Gillis, Brogden, R.N., 1997. Ketorolac A Reappraisal of Its Pharmacodynamics and Pharmacokinetic Properties and Therapeutic Use in Pain Management. *Drugs* **53** (1), 139–188.
- Gillis, J.C., Brogden, R.N., 1997. Ketorolac: A Reappraisal of Its Pharmacodynamic and Pharmacokinetic Properties and Therapeutic Use in Pain Management. *Drugs* **53** (1), 139–188.
- Gynecol, O., Gynaecol, B.J.O., Reprod, H., Steril, F., Reprod, H., Med, A.E., 2000. Ketorolac Versus Morphine for Severe Pain. *BMJ* **321**, 1236–1237.
- Hamilton, S.M., Bayer, C.R., Stevens, D.L., and Bryant, A.E., 2014. Effects of Selective and Nonselective Nonsteroidal Anti-inflammatory Drugs on Antibiotic Efficacy of Experimental Group A Streptococcal Myonecrosis. *JID* **209** (1), 1429–1435.



- Haragsim, L., Dalal, R., Bagga, H., and Bastani, B., 1994. Ketorolac-Induced Acute Renal Failure and Hyperkalemia: Report of Three Cases. *Am. J. Kidney Dis.* **24** (4), 578–580.
- Iasella, C.J., Johnson, H.J., Dunn, M.A., 2016. Adverse Drug Reactions Type A ( Intrinsic ) or Type B ( Idiosyncratic ). *Clin. Liver Dis.* **10**, 1–15.
- Joddy, R., Putra, S., Achmad, A., and P, H.R., 2017. Kejadian Efek Samping Potensial Terapi Obat Anti Diabetes Pasien Diabetes Melitus Berdasarkan Algoritma Naranjo Potential Side Effects of Anti-Diabetic Drug Therapy In Diabetes Mellitus Patients Based On Naranjo Algorithm. *Pharm. J. Indones.* **2** (2), 45–50.
- Karmena, D., Eri, S., dan Oktaliyah, E., 2015. Perbandingan Kombinasi Tramadol Paracetamol Intravena dengan Tramadol Ketorolak Intravena Terhadap Nilai Numeric Rating Scale dan Kebutuhan Opioid Pascahisterektomi. *J. Anestesi Perioper.* **3** (1), 189–195.
- Kementerian Kesehatan, 2016. *Keputusan Menteri Kesehatan Republik Indonesia Nomor HK.02.02/Menkes/137/2016 Tentang Perubahan Atas Keputusan Menteri Kesehatan Nomor HK.02.02/Menkes/523/2015 Tentang Formularium Nasional*. Kementerian Kesehatan Republik Indonesia, Jakarta, Indonesia.
- Laisalmi, M., Eriksson, H., Koivusalo, a M., Pere, P., Rosenberg, P., Lindgren, L., 2001. Ketorolac Is Not Nephrotoxic in Connection with Sevoflurane Anesthesia in Patients Undergoing Breast Surgery. *Anesth. Analg.* **92** (4), 1058–1063.
- Lee, A., Cooper, M.G., Craig, J.C., Knight, J.F., and Keneally, J.P., 1999. The Effects of Nonsteroidal Anti-Inflammatory Drugs (NSAIDs) on Postoperative Renal Function: A Meta-Analysis. *Anaesth Intensive Care* **27** (6), 574–580.
- Lee, A., Mg, C., Jc, C., Jf, K., Jp, K., Et al., 2004. Effects of Nonsteroidal Anti-Inflammatory Drugs on Post-Operative Renal Function in Normal Adults. *Cochrane Collab.* **1** (2), 2–48.
- Lee, S.Y., Lee, W.H., Lee, E.H., Han, K.C., and Ko, Y.K., 2010. The Effects of Paracetamol, Ketorolac, and Paracetamol Plus Morphine on Pain Control After Thyroidectomy. *Korean J. Pain* **23** (2), 124–30.
- Lemeshow, S., Jr, D.W.H., Klar, J., Lwanga, S.K., 1990. *Adequacy of Sample Size in Health Studies, Adequacy of Sample Size in Health Studies*. World Health Organization, New York.
- Maheshwari, P., Praveen, D., and Ravichandiran, V., 2014. Adverse Drug Reactions and Interactions of NSAIDs in General Care Hospital. *Asian J. Pharm. Clin. Res.* **7** (3), 69–71.
- Masaeli, M., Khazaee, A., and Shahabian, M., 2017. Effectiveness of Intravenous Ketorolac versus Intravenous Morphine Sulfate on Pain Control in Patients



with Acute Renal Colic : A Phase 3 Randomized Clinical Trial. *Focus Sci.* **3** (3), 1–6.

Masoumi, B., Farzaneh, B., Ahmadi, O., And, Heidari, F., 2017. Effect of Intravenous Morphine and Ketorolac on Pain Control in Long Bones Fractures. *Adv. Biomed. Res.* **6** (1), 91.

Mony, D., Kulkarni, D., and Shetty, L., 2016. Comparative Evaluation of Preemptive Analgesic Effect of Injected Intramuscular Diclofenac and Ketorolac After Third Molar Surgery-A Randomized Controlled Trial. *J. Clin. Diagnostic Res.* **10** (6), 102–106.

Motov, S., Yasavolian, M., Likourezos, A., Pushkar, I., Hossain, R., Drapkin, J., Cohen, V., Filk, N., Et al., 2017. Comparison of Intravenous Ketorolac at Three Single-Dose Regimens for Treating Acute Pain in the Emergency Department: A Randomized Controlled Trial. *Ann. Emerg. Med.* **70** (2), 177–184.

Mpirimbanyi, C., Nyirimodoka, A., Lin, Y., Hedd-Gauthier, B.L., Odhiambo, J., Nkurunziza, T., Havens, J.M., Omondi, J., Rwamasirabo, E., Ntirenganya, F., Toma, G., Mubiligi, J., Bayitondere, S., Rivello, R., 2017. Emergency General Surgery in Rwandan District Hospitals: A Cross-Sectional Study of Spectrum, Management, and Patient Outcomes. *BMC Surg.* **17** (1), 1–8.

Nankivell, J.B., 2001. Creatinine Clearance and The Assessment of Renal Function. *Aust. Prescr.* **24** (1), 15–17.

Naranjo, C.A., Bustó, U., Sellers, E.M., Sandor, P., Ruiz, I., Roberts, E.A., Janecek, E., Domecq, C., Greenblatt, D.J., 1981. A Method for Estimating The Probability of Adverse Drug Reactions. *Clin. Pharmacol. Ther.* **30**, 239–245.

Oliveri, L., Jerzewski, K., and Kulik, A., 2013. Black Box Warning: Is Ketorolac Safe for Use After Cardiac Surgery? *J. Cardiothorac. Vasc. Anesth.* **28** (2), 274–279.

Ornetti, P., Dougados, M., Paternotte, S., Logeart, I., Gossec, L., 2011. Validation of A Numerical Rating Scale To Assess Functional Impairment In Hip And Knee Osteoarthritis: Comparison With The WOMAC Function Scale. *Ann. Rheum. Dis.* **70** (5), 740–746.

Patrocínio, L.G., Rangel, M.D.O., Miziara, G.S.M., Rodrigues, A.M., Patrocínio, J.A., And Patrocinio, T.G., 2007. A Comparative Study Between Ketorolac and Ketoprofen in Postoperative Pain After Uvulopalatopharyngoplasty. *Braz. J. Otorhinolaryngol.* **73** (3), 339–342.

Pemerintah Republik Indonesia, 2015. *Peraturan Pemerintah Republik Indonesia Nomor 93 Tahun 2015 Tentang Rumah Sakit Pendidikan* 1–37.

Penniston, S.G., and Hargreaves, K.M., 1996. Evaluation Of Periapical Injection Of Ketorolac For Management Of Endodontic Pain. *J. Endod.* **22** (2), 55–59.

Philpott, H.L., Nandurkar, S., Lubel, J., Gibson, P.R., 2014. Drug-Induced



Gastrointestinal Disorders. *Frontline Gastroenterol.* **5** (10), 49–57.

- Rao, T.R.K., Naidu, M.U.R., Shobha, J., Ravisekhar, K., Rani, P.U., Chandrasekhar, E., 1995. Renal Effects of Oral Ketorolac in Patients with Mild to Moderate Pain. *Clin. Drug Invest* **9** (2), 111–115.
- Resnick, B., 2015. The Definition, Purpose and Value of Pilot Research. *Geriatr. Nurs. (Minneap).* **36** (2), S1–S2.
- Ricciotti, Emanuela and FitzGerald, G.A., 2011. Prostaglandin and Infammation. Arter. *Thromb Vasc Boil* **31** (5), 986–1000.
- Rini, P.N., Mhd, I., dan Lubis, A., 2016. Perbandingan Efektivitas Kombinasi Fentanyl Patch 12.5 microgram/jam dan 25 microgram/jam dengan Ketorolak 30 mg Intravena pada Pascabedah Ortopedi Ekstremitas Bawah. *J. Anestesi Perioper.* **4** (51), 95–102.
- Shah, A. V, Arun, K.K., Rai, K.K., and Kumar, B.P.R., 2012. Comparative Evaluation of Pre-Emptive Analgesic Efficacy of Intramuscular Ketorolac Versus Tramadol Following Third Molar Surgery. *J. Maxillofac. Oral Surg.* **12** (2), 197–202.
- Shahrba, F.G., Assadi, F., 2015. Drug-Induced Renal Disorders. *J. Ren. Inj. Prev.* **4** (3), 57–60.
- Sihombing, M., Sapardin, A.N., Penelitian, B., Ri, K.K., 2014. *Faktor Resiko Tumor Payudara pada Perempuan Umur25-65 Tahun Di Lima Kelurahan Kecamatan Bogor Tengah. Kemenkes RI* **1** (1), 1–10.
- Siribumrungwong, K., Cheewakidakarn, J., Tangtrakulwanich, B., and Nimmaanrat, S., 2015. Comparing Parecoxib and Ketorolac as Preemptive Analgesia in Patients Undergoing Posterior Lumbar Spinal Fusion: A Prospective Randomized. *BMC Musculoskelet. Disord.* **16** (59), 1–8.
- Targoff, R.B., 1990. Ketorolac: A Parenteral Nonsteroidal Antiinflammatory Drug *Drug* **24**, 1098–1104.
- Terry, J.B., Chris, M., Herndon, 2015. *Pain Management. In: Pharmacotherapy Handbook Ninth Edition.* McGraw Hill Education, United States, pp. 557–577.
- Traversa, G., AM, W., FM, I., Caffari, B., Capurso, L., Dezi, A., Et, A., 1995. Gastroduodenal Toxicity of Different Nonsteroidal Antiinflammatory Drugs. *Epidemiology* **6**, 49–54.
- Vacha, M.E., Huang, W., and Mando-vandrick, J., 2015. Off-Label Drug Uses The Role of Subcutaneous Ketorolac for Pain Management. *Hosp Pharm* **50** (2), 108–112.
- Vieyra, J.P., Acosta, F.O., and Javier, F., 2017. The Effect of Preoperative Administration of Single-Dose Inflammatory Drug and Placebo on Postoperative Pain in Teeth with Irreversible Pulpitis and Apical Periodontitis. *JSM Dent. Surg.* **2** (4), 1–6.



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Wolfe, F., Janice, A., Thomas, A.B., Lester, M.A., Pettitt, D., 2002.  
Gastroprotective Therapy and Risk of Gastrointestinal Ulcers: Risk Reduction by COX-2 Therapy. *Rheumatology* **29** (3), 467–473.