

- Ahmed, M., Abdelsalam, A., Zedan T., Ahmad, 2015. A comparative study between levobupivacaine and hyperbaric bupivacaine in spinal anesthesia for ambulatory brachytherapy for carcinoma of the cervix. *Ain-Shams Journal of Anaesthesiology*, Volum 8, pp. 608.
- Anderson, L., Walker, J., Brydon, C., Serpell, M., 2001. Rate of Injection through Whitacre needles affects Distribution of Spinal Anaesthesia. *British Journal of Anaesthesia*, Volum 86. pp. 245-8.
- Akan, B., Yagan, O., Bilal, B., Erdem, D., Gogus, N, 2013. Comparison of levobupivacaine alone and in combination with fentanyl and sufentanil in patients undergoing transurethral resection of the prostate. *Journal research and medical sciences*, Volum 5, pp. 378-82. available in: <https://pubmed.ncbi.nlm.nih.gov/24174940/>
- Alley, E., Kopacz, D., McDonald, S., Liu, Sp., 2002. Hyperbaric Spinal Levobupivacaine: A Comparison to Racemic Bupivacaine in Volunteers. *Anaesthesia Analgesia*. Volum 94, pp. 188-93.
- Attri, J., Kaur, G., Kaur, S., Kaur, R., Mohan, B., Kashyap, K. 2015. Comparison of levobupivacaine and levobupivacaine with fentanyl in infraumbilical surgeries under spinal anaesthesia, *Anesthesia: Essay and Researches*, Volum 9. pp. 178-184.
- Akcaboy, E., Zeynep, N., Nermin G, 2011. Low dose levobupivacaine 0.5% with fentanyl in spinal anaesthesia for transurethral resection of prostate surgery. *Journal of Research in Medical Sciences*, pp. 68-73. available in : <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3063440/>
- Bajwa, S., Kaur, J., 2013. Clinical Profile of Levobupivacaine in Regional Anesthesia: A Systematic Review. *Journal of Anesthesia: Clinical Pharmacology*, Volum 29, pp. 530-539.
- Banerjee, R., Kamrava, M., 2014. Brachytherapy in the treatment of cervical cancer: a review. *International Journal of Women's Health*, Volum 6. pp.555-564.
- Bhanabai, H., Samant, R., Grenier, L., Lowry, S, 2013. Pain Assessment During Concious Sedation For Cervical Cancer High Dose Rate Brachytherapy. *Current Oncology*, Volum 30. pp. 307-10.
- Brown DT, Wildsmith JA, Covino BG, Scott DB. 1980. Effect of baricity on spinal anaesthesia with amethocaine. *Br J Anaesth*. Volum 52, pp.589–96.
- Budiana, N., 2014. *Peranan Brakhiterapi Pada Kanker Serviks*. [Online] Available at: https://fk.unud.ac.id/obgin/wp-content/uploads/2015/04/Peranan_Brachytherapy_Sebagai_Terapi_Pada_Kanker_Serviks.pdf. [Accessed 14 10 2018].



Perioperative Documentation in *Morgan & Mikhail's Clinical Anesthesiology Fifth Edition*. Mc Graw Hill Education. pp. 297.

Covino, B., 1981. Physiology and Pharmacology of Local Anaesthesia Agent. *Anaesthesia Progress*, pp:98-102. Diunduh dari : <https://link.springer.com/book/10.1007/978-3-642-68139-4>

Casati, A. & Putzu, M., 2005. Bupivacaine, levobupivacaine and ropivacaine: are they clinically different? *Best Practice & Research Clinical Anaesthesiology*, Volum 2, pp. 247-268.

Chambers, D., Huang, C., Matthews, G, 2015. *Basic Physiology for Anaesthetists*. Cambridge: Cambridge university press.

Chalapathy, P., Jayasundaram, E., 2016. Taylor's approach is the best approach to overcome difficulty in lumbal puncture in difficult spinal cases. *IOSR Journal of Dental and Medical Sciences*, Volum 15, issues 12, pp. 11-15.

Chandra, D. & Brahma, S., 2018. Comparison of Racemic Bupivacaine and Levobupivacaine; combined with low dose Fentanyl, through Intrathecal Route for Transurethral Resection of Prostate. *Clinical & Biomedical Research*, Volum 4, pp. 10-13.

Clarke, H., Tarshis, J., McCulloch, J.L., Kay, J., 2009. Saddle Block Analgesia for High Dose Rate Brachytherapy: A Prospective Study. *Brachytherapy Journal*, Volum 8, pp. 335-338.

Caton. D., 2008. Maternal and Fetal Physiology in Chestnut, D (Editor), Chestnut: Obstetric Anesthesia: Principles and Practice, 3rd ed. Philadelphia: Elsevier.pp.18-22.

Cousins, M., Bridenbaugh, P., 1998. Neural Blockade in Clinical Anesthesia and Management of Pain Third Edition. Ohio: Lippincot Rven. pp. 282-3.

Cowen, R., Stasiowska, M., Laycock, H., Bantel, C., Assesing Pain Objectively: the Use of Physiological Markers. 2015. *The Association of Anesthesia of Great Britain and Ireland*. pp. 828-47.

Crowley, L., Buggy, D, 2008. Shivering and Neuraxial Anesthesia. *Regional Anesthesia and Pain Medicine*, Volum 33, pp. 241-52.

Cuvas, O., Gulec, H., Karaaslan, M., Basar, H., 2009. The use of low dose plain solutions of local anaesthetic agents for spinal anaesthesia in the prone position: bupivacaine compared with levobupivacaine. *Journal of the Association of Anaesthetists of Great Britain and Ireland*, Volum 64. pp. 14-18.

Danelli, G., Baciarello, M., Cianni, S., et al., 2008. Effects of baricity of 0.5% or 0.75% levobupivacaine on the onset time of spinal anesthesia: a randomized trial. *Canadian Journal of Anaesthesia*. pp. 501-6.

Dahlan, S., 2018. Langkah langkah membuat proposal penelitian bidang kedokteran dan kesehatan: seri based evidenced medicine Seri 3 Edisi 2. Jakarta: Sagung Seto.



Research and Review Journal of Journal of Nursing and Health Sciences.

- Duggal, R., Kapoor, R., Moyal, G., 2013. A comparison of intratechal levobupivacaine with hyperbaric bupivacaine for elective cesarean section: A prospective randomized double-blind study. *Journal of Obstetric Anaesthesia and Critical Care*, Volum 75. pp, 64-70.
- Eifel, P. J., 1997. Intracavitary brachytherapy in the treatment of gynecologic neoplasms. *Journal of Surgical Oncology*, Volum 66, pp. 141-147.
- Fettes, P., Jansson, J., Wildsmith., 2009. Failed Spinal Anaesthesia: Mechanism, Management, and Prevention. *British Journal of Anaesthesia*. pp. 739-48.
- Fattorini, F., Ricci, Z., Rocco, A., Romano, R., Pascarella, M., Pinto, G., 2006. Levobupivacaine versus Racemic Bupivacaine for Spinal Anaesthesia in Orthopedic Mayor Surgery. *Minerva Anesthesiology Journal*. pp. 637-44.
- Flood, P., Rathmell, J., Shafer, S., 2015. *Stoelting's Pharmacology and Physiology*. Fifth ed. California: Lippincott William & Wilkins.
- Gautier, P., Kock, M., Huberty, L., Demir, T., Izydorczic, M., Vanderick, B. 2003. Comparison of the effects of intrathecal ropivacaine, levobupivacaine, and bupivacaine for Caesarean section. *British Journal of Anaesthesia*. Volume 91. pp.684-9.
- Glaser, C., Marhofer, P., Zimpfer, G., Heinz, T., Sitzwohl, C., Kapral, S., Schindler, I., 2002. Levobupivacaine versus racemic bupivacaine for spinal anaesthesia. *Anesthesia & Analgesia*, Volum 94, pp. 194-198.
- Gunusen, I., Semra, K., Asuman, S., Vicdan, F, 2010. A randomized comparison of different doses of intrathecal levobupivacaine combined with fentanyl for elective cesarean section: prospective, double-blinded study. *The Journal of Anesthesia*, Volum 25, p. 205.
- Hadzic, A., 2007. Spinal Anesthesia. *Textbook of Regional Anesthesia and Pain Management*. New York: McGraw Hill Companies.
- Hamada, Y., Arai, T., Ishizaki, T., Itou H., Yokohama. E., Isshiki, A., 1997. Effect of Injection Speed on Level of Isobaric Spinal Anaesthesia, *The Journal of Japan Society for Clinical Anaesthesia*, Volum 17. pp. 14-18. Diunduh dari https://www.jstage.jst.go.jp/article/jjsca1981/17/1/17_1_14/article/-char/en
- Hocking, G., Wildsmith, J, 2004. Intrathecal Drug Spread. *British Journal of Anaesthesia*, pp. 568-78.
- Ismail, H., Ho, K., Narayan, K., Chennakesavan, S., 2010. Effect of neuraxial anaesthesia on tumour progression in cervical cancer patients treated with brachytherapy: a retrospective cohort study. *British Journal of Anaesthesia*, Volum 105, pp. 145-9.
- Jadhav, P., 2017. A study of effectiveness of 0.5% bupivacaine for sensory blockade as local anesthesia in epidural and spinal phase. *Indian Journal of Clinical Anaesthesia*, pp. 80-83.



Joslin, C.A., Flynn, A., Hall, E.J., 2001. Principles and Pracataice of Brachytherapy using afterloading system. London: Arnorld Publisher. pp. 44-50, 347, 380.

Kim, S. Y., 2013. Efficacy versus Effectiveness. *Korean Journal of Family Medicine*, Volum 34, pp. 227.

Kumar, S., Anand, R., Prasad, C., Sekhar, S., Kishore, Raghwendra, K., Kumar, A., Evaluation os Spinal Anaesthesia Using Low Dose Hyperbaric Bupivacaine for Day Care Surgery. *Journal of medical Science and Clinical Research*. pp. 32-35.

Lynch, S. 2019. Drug Efficacy and Safety. MSD Manual. Diunduh dari :
<https://www.msdmanuals.com/professional/clinical-pharmacology/concepts-in-pharmacotherapy/drug-efficacy-and-safety>

Leong, Y.H., Sook Tan, K., Choo, A.A., Koh, V. Y., Tang, J. I., 2017. Novel Anesthetic Technique for Combined Intracavitary and Interstitial Brachytherapy for Cervix Cancer in an Outpatient Setting. *Journal of Contemp Brachytherapy*, Volum 9, pp. 236-241.

Lyons, G., Columb, M., Wilson, R., Jihnsen, R., 1998. Epidural Pain Relief in Labor: Potencies of Levobupivacaine and Racemic Bupivacaine. *British Journal of Anaesthesia*, Volum 6, pp. 899-901.

Mahmoud, O., Kilic, S., Khan, A., Beriwal, S., Small, W., 2017. External beam techniques to boost cervical cancer when brachytherapy is not an option—theories and applications, *Annals of Translational Medicine*, Volum 5. pp.207.

Maniyar F., Trishala, J., Praveen, K, 2016. Spinal Anesthesia for Transurethral Resection of Prostate: Levobupivacaine with or without Fentanyl. *International Journal of Anesthesiology & Research*, Volum 4, pp. 358-362.

Misirlioglu, K., Sivrikaya, G., Hanci, A., Yalcinkaya, A., 2013. Intrathecal low dose levobupivacaine and bupivacaine combined with fentanyl in a randomised controlled study for caesarean section: blockade characteristics, maternal and neonatal effects. *Hippokratia Journal*, Volum 17, pp. 262-7.

Nuranna, L., Mohamad A., Santoso C., Gatot, Sigit, P., Budiningsih, S., Alexander P, 2012. Cervical cancer prevention program in Jakarta, Indonesia: See and Treat model in developing country. *Journal of Gynecologic Oncology*, pp. 147-152.

Nightingale, P., 1983. Barbotage and Spinal Anaesthesia: The effect of barbotage on the spread of analgesia during isobaric spinal anaesthesia. *Anaesthesia Journal of Perioperative Medicine, Criticare Care and Pain*, Volum 38. pp. 7-9.

Nysora, 2019. Spinal Anesthesia. [Online]
Available at: <https://www.nysora.com/techniques/neuraxial-and-perineuraxial-techniques/spinal-anesthesia/> [Accessed 09 September 2019].

Notoatmodjo, S. 2005. Metodologi Penelitian Kesehatan. Jakarta: Rineka Cipta.



Available at: <https://www.who.int/cancer/prevention/diagnosis-screening/cervical-cancer/en/> [Accessed 24 July 2019].

- Panni, M. & Segal, S., 2003. New local anesthetics Are they worth the cost. *Anesthesiology Clinics of North America*. Volum 1, pp. 19-38.
- Petitt, M., Ackerman, R., Hanna, M., Chen, L., Mhaskar, R., Fernandez, D., Patel, S., 2020. Anesthetic and analgesic methods for gynecologic brachytherapy: A meta-analysis and systematic review. *Brachytherapy*, pp. 1-9.
- Rathore, N., Lalit, R., Arvind S., Abbay J., Vikram, R., 2017. The conscious sedation is a fast and safe option to perform intracavitary brachytherapy in carcinoma cervix patients: An institutional experience. *Indian Journal of Clinical Anesthesia*. pp. 329-32.
- Ramalho, J., Castillo, M., 2014. Radiotherapy Induced Changes in Spine and Spinal Contents. *Medical Radiology Diagnosis and Imaging*. Springer International Publishing Switzerland. pp. 233-40.
- Rawal, N. 2001. Analgesia for Day Case Surgery. *British Journal of Anaesthesia*, Volum 87. pp.73-87.
- Roessler, B., Six, R., Gustorff, B., 2008. Anaesthesia for brachytherapy. *Current Opinion in Anesthesiology*, Volum 21, pp. 514-8.
- Sastroasmoro, S., Ismael, S., 2014. Dasar dasar Metodologi Penelitian Klinis. Sagung Seto. pp. 191-204.
- Sethi D., 2019. Randomised Control Trial Comparing Plain Levobupivacaine and Ropivacaine with Hiperbaric Bupivacaine in Caesarean Deliveries. *Turkish Journal of Anaesthesiology and Reanimation*, Volum 46. pp. 471-9.
- Sivakumar, S., Manickam, A., Krishna, H., 2016. 0.5 % Isobaric Levobupivacaine, 0.5 % Isobaric Levobupivacaine With Fentanyl And 0.5 % Hyperbaric Bupivacaine - Comparative Study in Infraumbilical Surgeries. *IOSR Journal of Dental and Medical Sciences*, pp. 79-85.
- Schwamegmeier, R., Schmidt, A., Nolte, H., 1990. The Effect of Injection Speed and Needle Gauge on the Spread of Sensory Blockade in Spinal Anaesthesia, *Regional Anaesthesia Journal*, Volum 13. pp.148-52. Diunduh dari: <https://pubmed.ncbi.nlm.nih.gov/2236710/>
- Smith, MD., Todd, J.G., Symonds, R.P., 2002. Analgesia for Pelvic Brachytherapy. *British Journal of Anesthesia*, Volum 2, pp. 270-2.
- Tantivatana, T., Kanisa, R., 2005. Treatment Outcomes of High Dose Rate Intracavitary Brachytherapy for Cervical Cancer: a Comparison of Ir-192 versus Co-60 Sources. *Journal of Gynecologic Oncology*, Volum 5, pp. 1-10.
- Tantri, A., Kapuangan, C., Edwin, F., 2016. Waktu pulih anestesia spinal pada Brakiterapi Intrakaviter: Perbandingan Levobupivacaine 5 mg Hiperbarik + Fentanyl 25 mcg dengan



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Perbandingan Efektivitas Anestesi Spinal menggunakan Levobupivacaine isobarik 0.5% 7,5 mg dengan Levobupivacaine 0,5% 10 mg pada Pasien Kanker Serviks yang Menjalani Brakhiterapi di RSUP Dr. Sardjito

HAJAR RAFIKA RANI, dr. Bhirowo Yudo Pratomo, SpAn, KAKV; dr. Juni Kurniawaty, SpAn, M. Sc, KAKV
Bupivacaine 5 mg Hyperbaric + Fentanyl 25 mcg. *Magalah Anesthesia & Critical Care*,
Volum 34. pp. 132-9.

- Turkmen, A., Moralar, G., Ali, A., Altan, A., 2012. Comparison of the anesthetic effects of intrathecal levobupivacaine + fentanyl and bupivacaine + fentanyl during Caesarean Section. *M.e.j. Anaesthesia*. Volume 21. pp.577-582.
- Uppal, V., Shanhanna, H., Prabhakar, C., McKeen, D, 2016. Intrathecal hyperbaric versus isobaric bupivacaine for adult non-caesarean section surgery: systematic review protocol. *British Medical Journal Open*, pp. 1-5.