

## DAFTAR PUSTAKA

- Adivitiya MSK, Soura C, Shobi V, *et al.* Mucociliary Respiratory Epithelium Integrity in Molecular Defence and Susceptibility to Pulmonary Viral Infections. *Biology*. 2021; 10(95).
- Adriaensen GFJPM, Fokkens WJ. Chronic rhinosinusitis: an update on current pharmacotherapy. *Expert Opin Pharmaco*. 2013; 14(17): 2351-60, doi: 10.1517/14656566.2013.837450.
- Amelia NL, Zuleika P, Utama DS. Prevalensi Rinosinusitis Kronik di RSUP Dr. Mohammad Hoesin Palembang. *Majalah Kedokteran Sriwijaya*. 2017; 49(2): 75-82.
- Amodu EJ, Fasunla AJ, Akano AO, *et al.* Chronic rhinosinusitis: correlation of symptoms with computed tomography scan findings. *Pan Afr*. 2014;18:40. doi: 10.11604/pamj.2014.18.40.2839.
- Antunes MB, Cohen NA. Mucociliary clearance - A critical upper airway host defense mechanism and methods of assessment. *Curr Opin Allergy Cl*. 2007; 7(1): 5-10. doi:10.1097/ACI.0b013e3280114eef.
- Aramani A, Karadi RN, Kumar S. A study of anatomical variations of osteomeatal complex in chronic rhinosinusitis patients-CT findings. *Journal of Clinical and Diagnostic Research*. 2014; 8(10): KC1-4. doi:10.7860/JCDR/2014/9323.4923.
- Bansil R, Turner BS. The biology of mucus: Composition, synthesis and organization. *Adv Drug Deliv Rev*. 2018 Jan 15; 124: 3-15. doi: 10.1016/j.addr.2017.09.023
- Benninger MS. Adult chronic rhinosinusitis: Definitions, diagnosis, epidemiology, and pathophysiology. *Otolaryngology - Head and Neck Surgery*. 2003; 129(3): S1-32. doi:10.1016/S0194-5998(03)01397-4.
- Brown SM, Tabae A, Anand VK. Complications of rhinosinusitis. *Rhinology and Facial Plastic Surgery*. 2009. Springer, Berlin, Heidelberg. doi:10.1007/978-3-540-74380-4\_24.

- Bustamante-Marin XM, Ostrowski LE. Cilia and mucociliary clearance', Cold Spring Harb Biol. 2017; 9. doi:10.1101/cshperspect.a028241.
- Chen EY, Sun A, Chen CS, Mintz AJ, Chin WC. Nicotine alters mucin rheological properties. *Am J Physiol Lung Cell Mol Physiol*. 2014 Jul 15; 307(2): L149-57. doi: 10.1152/ajplung.00396.2012
- Corbo GM, Foresi A, Bonfitto P, et al. Measurement of nasal mucociliary clearance. *Archives of Disease in Childhood*. 1989; 64:546-550. doi:10.1136/ad.64.4.546.
- Crombruggen KV, Zhang N, Gevaert P, et al. Pathogenesis of chronic rhinosinusitis: Inflammation. *Journal of Allergy and Clinical Immunology*. 2011; 128(4): 728-32. doi:10.1016/j.jaci.2011.07.049.
- D'Amato G, Cecchi L, D'Amato M, Liccardi G. Urban air pollution and climate change as environmental risk factors of respiratory allergy: an update. *J Investigating Allergol Clin Immunol*. 2010;20(2):95-102
- Darmawan AB, Aprilia R, Santosa Q. Perbedaan Kecepatan Waktu Transport Mukosilia Hidung Pekerja Pengolah Batu Gamping dibanding Non-Pekerja [Online]. 2008. Cited 10 Mei 2021.
- Daniels DL, Mafee MF, Smith MM, et al. The frontal sinus drainage pathway and related structures. *AJNR Am J Neuroradiol*. 2003 Sep; 24(8): 1618-27.
- DeConde AS, Soler ZM. Chronic rhinosinusitis: Epidemiology and burden of disease. *Am J Rhinol Allergy*. 2016 Mar-Apr; 30(2): 134-9. doi: 10.2500/ajra.2016.30.4297.
- Ferreira-Ceccato AD, Ramos EM, de Carvalho LC Jr, et al. Short-term effects of air pollution from biomass burning in mucociliary clearance of Brazilian sugarcane cutters. *Respira Med*. 2011 Nov; 105(11): 1766-8. doi: 10.1016/j.rmed.2011.08.003.
- Fokkens WJ, Lund VJ, Mullol J, et al. EPOS 2012: European position paper on rhinosinusitis and nasal polyps 2012. A summary for otorhinolaryngologists. *Rhinology*. 2012 Mar; 50(1): 1-12. doi: 10.4193/Rhino12.000.
- Fokkens W, Lund V, Mullol J; European Position Paper on Rhinosinusitis and Nasal Polyps group. European position paper on rhinosinusitis and nasal

- polyps 2007. *Rhinol Suppl.* 2007; 20:1-136.
- Gelman RA, Meyer FA. Mucociliary transference rate and mucus viscoelasticity dependence on dynamic storage and loss modulus. *Am Rev Respir Dis.* 1979 Sep;120(3):553-7. doi: 10.1164/arrd.1979.120.3.553
- Gerring R, Sargi Z, Collins W, et al. Pediatric rhinosinusitis. *Pediatric and Adult SinoNasal Disorders.* 2015.
- Gudis D, Zhao KQ, Cohen NA. Acquired cilia dysfunction in chronic rhinosinusitis. *Am J Rhinol Allergy.* 2012 Jan-Feb; 26(1): 1-6. doi:10.2500/ajra.2012.26.3716.
- Hadiningsih C, Sedjawidada R, Kodrat L, et al. Effect of conservative treatment on "mucociliar clearance" of the Eustachian tube in patients with active benign CSOM. *Oto Rhino Laryngologica Indonesiana.* 2013; 40 (10). doi:10.32637/orli.v40i2.5.
- Hamid O, Fiky LE, Hassan O, et al. Anatomic variations of the sphenoid sinus and their impact on trans-sphenoid pituitary surgery. *Skull Base.* 2008; 18(1): 9-15. doi:10.1055/s-2007-992764.
- Hamilos DL. Chronic rhinosinusitis: Epidemiology and medical management. *J Allergy Clin Immune.* 2011; 128(4): 693-707. doi: 10.1016/j.jaci.2011.08.004.
- Harkema JR, Carey SA, Wagner JG, et al. Nose, Sinus, Pharynx, and Larynx. Comparative Anatomy and Histology. Elsevier. 2012: 71-94. doi:10.1016/B978-0-12-381361-99.00006-8.
- Hastan D, Fokkens WJ, Bachert C, et al. Chronic rhinosinusitis in Europe – an underestimated disease. A GA2LEN study. *Allergies.* 2011; 66:1216–23. doi:10.1111/j.1398-9995.2011.02646.x.
- Head K, Snidvongs K, Glew S, Scadding G, Schilder AG, Philpott C, Hopkins C. Saline irrigation for allergic rhinitis. *Cochrane Database Syst Rev.* 2018 Jun 22;6(6):CD012597. doi: 10.1002/14651858.CD012597.pub2
- Hendradewi S, Primadewi N, Shofiyati N. Perbedaan transpor mukosiliar pada pemberian larutan garam hipertonik dan isotonik penderita rhinosinusitis kronis. *Oto Rhino Laryngologica Indonesiana* [Online]. 2016; 46(2): 121-8.

Web.

- Hoang JK, Eastwood JD, Tebbit CL, et al. Multiplanar sinus CT: A systematic approach to imaging before functional endoscopic sinus surgery. *American Journal of Roentgenology*. 2010; 194(6): 527-36. doi: 10.2214/AJR.09.3584.
- Hoehn K, Marieb EN. Human Anatomy & Physiology. Benjamin-Cummings Publishing Company. 2006.
- Hopkins C. Chronic rhinosinusitis with nasal polyps. *N Engl J Med*. 2019; 381: 55-63. doi:10.1056/NEJMcp1800215.
- Houtmeyers E, Gosselink R, Gayan-Ramirez G, et al. Regulation of mucociliary clearance in health and disease. *Eur Respir J*. 1999; 13:1177-88. doi: 10.1034/j.1399-3003.1999.13e39.x.
- Indonesian Ministry of Health. Basic Health Research 2018. Available at: <http://labdata.litbang.depkes.go.id/riset-badan-litbangkes/menu-risikesnas/menu-risikesdas>. 2018.
- Khalil H, Nunez DA. Functional endoscopic sinus surgery for chronic rhinosinusitis. *Cochrane Database System Rev*. 2006; 3: 1465-78. doi: 10.1002/14651858.CD004458.pub2.
- Kurniasih C, Ratnawati L. 2019. Distribusi penderita rinosinusitis kronis yang menjalani pembedahan di RSUP Sanglah Denpasar Periode Tahun 2014-2016. *Medicina*. 50(1). DOI:10.15562/medicina.v50i1.272
- Lai H, Rogers DF. Mucus hypersecretion in asthma: intracellular signalling pathways as targets for pharmacotherapy. *Current Opinion in Allergy and Clinical Immunology*. 2010; 10: 67-76.
- Lam K, Schleimer R, Kern RC. The Etiology and Pathogenesis of Chronic Rhinosinusitis: a Review of Current Hypotheses. *Curr Allergy Asthma Rep*. 2015; 15. doi:10.1007/s11882-015-0540-2.
- Levine CG, Casiano RR. Revision Functional Endoscopic Sinus Surgery', *Otolaryngol Clin N Am*. 2017; 50(1): 143-64. doi:10.1016/j.otc.2016.08.012.
- Mangunkusumo E, Wardani RS. Polip Nasi. Dalam: Soepardi E, Iskandar N, Bashirudin J, Restuti RD. (Eds). Buku Ajar Ilmu Kesehatan Telinga Hidung Tenggorok Kepala dan Leher. Edisi 6. Jakarta: FK UI. 2007

- Maroldi R, Ravanelli M, Borghesi A, et al. Paranasal sinus imaging. *Eur J Radiol.* 2008; 66(3): 372-86. doi:10.1016/j.ejrad.2008.01.059.
- Márquez S, Tessema B, Clement PA, et al. Development of the ethmoid sinus and extramural migration: The anatomical basis of this paranasal sinus. *Anat.* 2008; 291(11): 1535-53. doi: 10.1002/ar.20775.
- Munir N, Clarke R. Ear, Nose and Throat at a Glance. Wiley-Blackwell. 2014. doi:10.1007/s13398-014-0173-7.2.
- Pandya VK, Tiwari RS. Nasal mucociliary clearance in health and disease. *Indian J Otolaryngol Head Neck Surg.* 2006; 58:332-4. doi:10.1007/BF03049581.
- Patel CR, Fernandez-Miranda JC, Wang WH, et al. Skull Base Anatomy. *Otolaryngol Clin North Am.* 2016; 49(1) 9-20. doi:10.1016/j.otc.2015.09.001.
- Piromchai P, Puvatanond C, Kirtsreesakul V, Chaiyasate S, Thanaviratananich S. Effectiveness of nasal irrigation devices: a Thai multicentre survey. *PeerJ.* 2019; 7: e7000. Published 2019 May 27. doi:10.7717/peerj.7000
- Pittet LA, Hall-Stoodley L, Rutkowski MR, et al. Influenza virus infection decreases tracheal mucociliary velocity and clearance of Streptococcus pneumoniae. *Am J Respirator Cell Mol Biol.* 2010 Apr; 42(4): 450-60. doi:10.165/rcmb.2007-0417OC.
- Plaza Valía P, Carrión Valero F, Marín Pardo J, et al. Test de la sacarina en el estudio del aclaramiento mucociliar. Valores de referencia en una población española [Saccharin test for the study of mucociliary clearance: reference values for a Spanish population]. *Arch Bronconeumol.* 2008 Oct; 44(10): 540-5. Spanish.
- Yama Dewi PK, Setiawan EP, Dwi Sutanegara SW. Karakteristik penderita rinosinusitis kronis yang rawat jalan di poli THT-KL RSUP Sanglah Denpasar tahun 2016. *E-Jurnal Medika Udayana.* 2018; 7(12). Retrieved from <https://ojs.unud.ac.id/index.php/eum/article/view/45060>
- Ramos EMC, de Toledo AC, Xavier RF, et al. Reversibility of impaired nasal mucociliary clearance in smokers following a smoking cessation programme. *Respirology.* 2011; 11: 849-55.
- Riana D, Dermawan A, Wijaya W, et al. Chronic Rhinosinusitis Patient with Nasal

- Polyp Characteristics at Otorhinolaryngology-Head and Neck Surgery Outpatient Clinic, Dr. Hasan Sadikin General Hospital, Bandung. *International Journal of Integrated Health Sciences*. 2016; 4(2): 62- 6.
- Rosenfeld, RM (2007) 'Clinical practice guidelines on adult sinusitis', *Otolaryngology - Head and Neck Surgery*. doi:10.1016/j.otohns.2007.07.021.
- Rosenfeld RM, Andes D, Bhattacharyya N, et al. Clinical practice guidelines: adult sinusitis. *Otolaryngol Head Neck Surg*. 2007 Sep; 137(3 Suppl): S1-31. doi:10.1016/j.otohns.2007.06.726.
- Sánchez-Vallecillo MV, Fraire ME, Baena-Cagnani C, Zernotti ME. Olfactory dysfunction in patients with chronic rhinosinusitis. *Int J Otolaryngol*. 2012;2012:327206. doi:10.1155/2012/327206.
- Salib RJ, Talpallikar S, Uppal S, Nair SB. A prospective randomised single-blinded clinical trial comparing the efficacy and tolerability of the nasal douching products Sterimar™ and Sinus Rinse™ following functional endoscopic sinus surgery. *Clin Otolaryngol*. 2013 Aug; 38(4): 297-305. doi: 10.1111/coa.12132
- Salsabila H, Indrawati LPL. Studi epidemiologi rhinosinusitis kronis (RSK) di poli THT RSUP DR Sardjito Yogyakarta. 2017.
- Schmidt, S. Chronic rhinosinusitis. *South African Family Practice*. 2015; 5(5): 20-5
- Sedaghat AR. Chronic rhinosinusitis. *Am Fam Physicians*. 2017 Oct 15; 96(8): 500-506. PMID: 29094889.
- Soemadi R, Samihardja Y, Haryati R. Hubungan Paparan Debu Kayu dengan Waktu Transport Mukosiliar Hidung (TMSH) pada Karyawan Perusahaan Mebel CV. Citra Jepara Furniture, Semarang. *Sains Medika*. 2009; 1(1).
- Sopiyudin, M. Statistics for Medicine and Health. 6th edn. Jakarta: Indonesian Epidemiology. 2015.
- Souza AD, Rajagopal KV, Ankolekar VH, et al. Anatomy of maxillary sinus and its ostium: A radiological study using computed tomography. *CHRISMED J Health Res*. 2016; 3(1): 37-40. doi: 10.4103/2348-3334.172397.
- Tomassen P, Van Zele T, Zhang N, et al. Pathophysiology of chronic rhinosinusitis.

*Proc Am Thorac Soc.* 2011 Mar; 8(1): 115-20. doi:10.1513/pats.201005-036RN.

van Crombruggen K, Zhang N, Gevaert P, Tomassen P, Bachert C. Pathogenesis of chronic rhinosinusitis: inflammation. *J Allergy Clin Immunol.* 2011 Oct;128(4):728-32. doi: 10.1016/j.jaci.2011.07.049.

van der Veen J, Thorne S. Bacterial meningitis: a rare complication of an unrecognized nasal foreign body in a child. *BMJ Case Rep.* 2017 Jan 30; 2017: bcr2015209577. doi:10.1136/bcr-2015-209577.

Venkatraman G. Endoscopic sinus surgery. In: Lubin MF, Smith RB, Dodson TF, Spell NO, Walker HK, eds. *Medical Management of the Surgical Patient: A Textbook of Perioperative Medicine.* 4th ed. Cambridge: Cambridge University Press; 2006:757-758. doi:10.1017/CBO9780511544590.125.

Wang, CS and Zhang, L. Management of chronic rhinosinusitis. 临床耳鼻咽喉头颈外科杂志 [*Journal of clinical otorhinolaryngology, head and neck surgery*]. 2016; 30(14): 1175-8. doi: 10.13201/j.issn.1001-1781.2016.14.024.

Wuister AM, Goto NA, Oostveen EJ, et al. Nasal endoscopy is recommended for diagnosing adults with chronic rhinosinusitis. *Otolaryngol Head Neck Surg.* 2014 Mar; 150(3): 359-64. doi: 10.1177/0194599813514510.