

DAFTAR PUSTAKA

- Armengol, M.-P., Cardoso-Schmidt, C.B., Fernández, M., Ferrer, X., Pujol-Borrell, R., Juan, M., 2003. Chemokines determine local lymphoneogenesis and a reduction of circulating CXCR4+ T and CCR7 B and T lymphocytes in thyroid autoimmune diseases. *J. Immunol. Baltim. Md* 1950 170, 6320–6328.
- Azizi, F., Malboosbaf, R., 2017. Long-Term Antithyroid Drug Treatment: A Systematic Review and Meta-Analysis. *Thyroid Off. J. Am. Thyroid Assoc.* 27, 1223–1231.
- Badan Penelitian dan Pengembangan Kesehatan Kementerian Kesehatan RI, 2013. *Penyajian Pokok-Pokok Hasil Riset Kesehatan Dasar 2013*.
- Bahn, R.S., 2015. Current Insights into the Pathogenesis of Graves' Ophthalmopathy. *Horm. Metab. Res. Horm. Stoffwechselforschung Horm. Metab.* 47, 773–778.
- Bahn, R.S., 2010. Graves' ophthalmopathy. *N. Engl. J. Med.* 362, 726–738.
- Bahn, R.S., Dutton, C.M., Natt, N., Joba, W., Spitzweg, C., Heufelder, A.E., 1998. Thyrotropin receptor expression in Graves' orbital adipose/connective tissues: potential autoantigen in Graves' ophthalmopathy. *J. Clin. Endocrinol. Metab.* 83, 998–1002.
- Barbesino, G., Tomer, Y., 2013. Clinical review: Clinical utility of TSH receptor antibodies. *J. Clin. Endocrinol. Metab.* 98, 2247–2255.
- Barrio-Barrio, J., Sabater, A.L., Bonet-Farriol, E., Velázquez-Villoria, Á., Galofré, J.C., 2015. Graves' Ophthalmopathy: VISA versus EUGOGO Classification, Assessment, and Management. *J. Ophthalmol.* 2015, 249125.
- Bartalena, L., 2013. Diagnosis and management of Graves disease: a global overview. *Nat. Rev. Endocrinol.* 9, 724–734.

- Bartalena, L., 2012. Prevention of Graves' ophthalmopathy. *Best Pract. Res. Clin. Endocrinol. Metab.* 26, 371–379.
- Bartalena, L., Baldeschi, L., Boboridis, K., Eckstein, A., Kahaly, G.J., Marcocci, C., Perros, P., Salvi, M., Wiersinga, W.M., European Group on Graves' Orbitopathy (EUGOGO), 2016. The 2016 European Thyroid Association/European Group on Graves' Orbitopathy Guidelines for the Management of Graves' Orbitopathy. *Eur. Thyroid J.* 5, 9–26.
- Bartalena, L., Piantanida, E., Gallo, D., Lai, A., Tanda, M.L., 2020. Epidemiology, Natural History, Risk Factors, and Prevention of Graves' Orbitopathy. *Front. Endocrinol.* 11, 615993.
- Bartalena, L., Pinchera, A., Marcocci, C., 2000. Management of Graves' ophthalmopathy: reality and perspectives. *Endocr. Rev.* 21, 168–199.
- Bartley, G.B., Fatourehchi, V., Kadrmas, E.F., Jacobsen, S.J., Ilstrup, D.M., Garrity, J.A., Gorman, C.A., 1996. Chronology of Graves' ophthalmopathy in an incidence cohort. *Am. J. Ophthalmol.* 121, 426–434.
- Bartley, G.B., Gorman, C.A., 1995. Diagnostic criteria for Graves' ophthalmopathy. *Am. J. Ophthalmol.* 119, 792–795.
- Boelaert, K., Torlinska, B., Holder, R.L., Franklyn, J.A., 2010. Older subjects with hyperthyroidism present with a paucity of symptoms and signs: a large cross-sectional study. *J. Clin. Endocrinol. Metab.* 95, 2715–2726.
- Brix, T.H., Kyvik, K.O., Christensen, K., Hegedüs, L., 2001. Evidence for a major role of heredity in Graves' disease: a population-based study of two Danish twin cohorts. *J. Clin. Endocrinol. Metab.* 86, 930–934.

- Campi, I., Vannucchi, G., Salvi, M., 2016. THERAPY OF ENDOCRINE DISEASE: Endocrine dilemma: management of Graves' orbitopathy. *Eur. J. Endocrinol.* 175, R117-133.
- Coles, A.J., Wing, M., Smith, S., Coraddu, F., Greer, S., Taylor, C., Weetman, A., Hale, G., Chatterjee, V.K., Waldmann, H., Compston, A., 1999. Pulsed monoclonal antibody treatment and autoimmune thyroid disease in multiple sclerosis. *Lancet Lond. Engl.* 354, 1691–1695.
- Davies, T., Marians, R., Latif, R., 2002. The TSH receptor reveals itself. *J. Clin. Invest.* 110, 161–164.
- Dolman, P.J., 2018. Grading Severity and Activity in Thyroid Eye Disease. *Ophthalm. Plast. Reconstr. Surg.* 34, S34–S40.
- Dolman, P.J., Rootman, J., 2006. VISA Classification for Graves orbitopathy. *Ophthalm. Plast. Reconstr. Surg.* 22, 319–324.
- Douglas, R.S., Gupta, S., 2011. The pathophysiology of thyroid eye disease: implications for immunotherapy. *Curr. Opin. Ophthalmol.* 22, 385–390.
- Eckstein, A.K., Plicht, M., Lax, H., Neuhäuser, M., Mann, K., Lederbogen, S., Heckmann, C., Esser, J., Morgenthaler, N.G., 2006. Thyrotropin receptor autoantibodies are independent risk factors for Graves' ophthalmopathy and help to predict severity and outcome of the disease. *J. Clin. Endocrinol. Metab.* 91, 3464–3470.
- Effraimidis, G., Wiersinga, W.M., 2014. Mechanisms in endocrinology: autoimmune thyroid disease: old and new players. *Eur. J. Endocrinol.* 170, R241-252.
- Forbes, G., Gorman, C.A., Brennan, M.D., Gehring, D.G., Ilstrup, D.M., Earnest, F., 1986. Ophthalmopathy of Graves' disease: computerized volume measurements of the orbital fat and muscle. *AJNR Am. J. Neuroradiol.* 7, 651–656.

- Gerding, M.N., van der Meer, J.W., Broenink, M., Bakker, O., Wiersinga, W.M., Prummel, M.F., 2000a. Association of thyrotrophin receptor antibodies with the clinical features of Graves' ophthalmopathy. *Clin. Endocrinol. (Oxf.)* 52, 267–271.
- Gonçalves, A.C.P., Gebrim, E.M.M.S., Monteiro, M.L.R., 2012. Imaging studies for diagnosing Graves' orbitopathy and dysthyroid optic neuropathy. *Clin. Sao Paulo Braz.* 67, 1327–1334.
- Hai, Y.P., Lee, A.C.H., Frommer, L., Diana, T., Kahaly, G.J., 2020. Immunohistochemical analysis of human orbital tissue in Graves' orbitopathy. *J. Endocrinol. Invest.* 43, 123–137.
- Higgins, V., Patel, K., Kulasingam, V., Beriault, D.R., Rutledge, A.C., Selvaratnam, R., 2020. Analytical performance evaluation of thyroid-stimulating hormone receptor antibody (TRAb) immunoassays. *Clin. Biochem.* 86, 56–60.
- Huber, A.K., Jacobson, E.M., Jazdzewski, K., Concepcion, E.S., Tomer, Y., 2008. Interleukin (IL)-23 receptor is a major susceptibility gene for Graves' ophthalmopathy: the IL-23/T-helper 17 axis extends to thyroid autoimmunity. *J. Clin. Endocrinol. Metab.* 93, 1077–1081.
- Hussain, Y.S., Hookham, J.C., Allahabadia, A., Balasubramanian, S.P., 2017. Epidemiology, management and outcomes of Graves' disease-real life data. *Endocrine* 56, 568–578.
- Jabbar, A., Pingitore, A., Pearce, S.H.S., Zaman, A., Iervasi, G., Razvi, S., 2017. Thyroid hormones and cardiovascular disease. *Nat. Rev. Cardiol.* 14, 39–55.
- Jarusaitiene, D., Verkauskiene, R., Jasinskas, V., Jankauskiene, J., 2016. Predictive Factors of Development of Graves' Ophthalmopathy for Patients with Juvenile Graves' Disease. *Int. J. Endocrinol.*

- Khoo, T.K., Bahn, R.S., 2007. Pathogenesis of Graves' ophthalmopathy: the role of autoantibodies. *Thyroid Off. J. Am. Thyroid Assoc.* 17, 1013–1018.
- Konuk, E.B.Y., Konuk, O., Misirlioglu, M., Menevse, A., Unal, M., 2006. Expression of cyclooxygenase-2 in orbital fibroadipose connective tissues of Graves' ophthalmopathy patients. *Eur. J. Endocrinol.* 155, 681–685.
- Kotwal, A., Stan, M., 2018. Thyrotropin Receptor Antibodies-An Overview. *Ophthalm. Plast. Reconstr. Surg.* 34, S20–S27.
- Kumar, S., Nadeem, S., Stan, M.N., Coenen, M., Bahn, R.S., 2011. A stimulatory TSH receptor antibody enhances adipogenesis via phosphoinositide 3-kinase activation in orbital preadipocytes from patients with Graves' ophthalmopathy. *J. Mol. Endocrinol.* 46, 155–163.
- Kummer, S., Hermsen, D., Distelmaier, F., 2016. Biotin Treatment Mimicking Graves' Disease. *N. Engl. J. Med.* 375, 704–706.
- Lacka, K., Manuszewska, E., Korczowska, I., Lacki, J.K., 2007. The effect of methylprednisolone pulse treatment on cytokine network in Graves ophthalmopathy. *Curr. Eye Res.* 32, 291–297.
- Lat, A.M., Jauculan, M.C., Sanchez, C.A., Jimeno, C., Sison-Peña, C.M., Pe-Yan, M.R., Pagkatipunan, P.M., Suller, A., Cena, M., 2017. Risk Factors Associated with the Activity and Severity of Graves' Ophthalmopathy among Patients at the University of the Philippines Manila-Philippine General Hospital. *J. ASEAN Fed. Endocr. Soc.* 32, 151–157.
- Laurberg, P., Wallin, G., Tallstedt, L., Abraham-Nordling, M., Lundell, G., Tørring, O., 2008. TSH-receptor autoimmunity in Graves' disease after therapy with anti-thyroid drugs, surgery, or radioiodine: a 5-year prospective randomized study. *Eur. J. Endocrinol.* 158, 69–75.

- Li, Q., Ye, H., Ding, Y., Chen, G., Liu, Z., Xu, J., Chen, R., Yang, H., 2017. Clinical characteristics of moderate-to-severe thyroid associated ophthalmopathy in 354 Chinese cases. *PLOS ONE* 12, e0176064.
- Londzin-Olesik, M., Kos-Kudła, B., Nowak, A., Wielkoszyński, T., Nowak, M., 2020. The effect of thyroid hormone status on selected antioxidant parameters in patients with Graves' disease and active thyroid-associated orbitopathy. *Endokrynol. Pol.* 71, 418–424.
- Ludgate, M., Crisp, M., Lane, C., Costagliola, S., Vassart, G., Weetman, A., Daunerie, C., Many, M.C., 1998. The thyrotropin receptor in thyroid eye disease. *Thyroid Off. J. Am. Thyroid Assoc.* 8, 411–413.
- Lytton, S.D., Schluter, A., Banga, P.J., 2018. Functional diagnostics for thyrotropin hormone receptor autoantibodies: bioassays prevail over binding assays. *Front. Biosci. Landmark Ed.* 23, 2028–2043.
- Maheshwari, R., Weis, E., 2012. Thyroid associated orbitopathy. *Indian J. Ophthalmol.* 60, 87–93.
- Martin, A., Schwartz, A.E., Friedman, E.W., Davies, T.F., 1989. Successful production of intrathyroidal human T cell hybridomas: evidence for intact helper T cell function in Graves' disease. *J. Clin. Endocrinol. Metab.* 69, 1104–1108.
- Matthews, D.C., Syed, A.A., 2011. The role of TSH receptor antibodies in the management of Graves' disease. *Eur. J. Intern. Med.* 22, 213–216.
- McLachlan, S.M., Rapoport, B., 2013. Thyrotropin-blocking autoantibodies and thyroid-stimulating autoantibodies: potential mechanisms involved in the pendulum swinging from hypothyroidism to hyperthyroidism or vice versa. *Thyroid Off. J. Am. Thyroid Assoc.* 23, 14–24.

- Menconi, F., Profilo, M.A., Leo, M., Sisti, E., Altea, M.A., Rocchi, R., Latrofa, F., Nardi, M., Vitti, P., Marcocci, C., Marinò, M., 2014. Spontaneous improvement of untreated mild Graves' ophthalmopathy: Rundle's curve revisited. *Thyroid Off. J. Am. Thyroid Assoc.* 24, 60–66.
- Morshed, S.A., Davies, T.F., 2015. Graves' Disease Mechanisms: The Role of Stimulating, Blocking, and Cleavage Region TSH Receptor Antibodies. *Horm. Metab. Res. Horm. Stoffwechselforschung Horm. Metab.* 47, 727–734.
- Morshed, S.A., Latif, R., Davies, T.F., 2009. Characterization of thyrotropin receptor antibody-induced signaling cascades. *Endocrinology* 150, 519–529.
- Mourits, M.P., Koornneef, L., Wiersinga, W.M., Prummel, M.F., Berghout, A., van der Gaag, R., 1989. Clinical criteria for the assessment of disease activity in Graves' ophthalmopathy: a novel approach. *Br. J. Ophthalmol.* 73, 639–644.
- Mourits, M.P., Prummel, M.F., Wiersinga, W.M., Koornneef, L., 1997. Clinical activity score as a guide in the management of patients with Graves' ophthalmopathy. *Clin. Endocrinol. (Oxf.)* 47, 9–14.
- Nagata, K., Nakayama, Y., Higaki, K., Ochi, M., Kanai, K., Matsushita, M., Kuwamoto, S., Kato, M., Murakami, I., Iwasaki, T., Nanba, E., Kimura, H., Hayashi, K., 2015. Reactivation of persistent Epstein-Barr virus (EBV) causes secretion of thyrotropin receptor antibodies (TRAbs) in EBV-infected B lymphocytes with TRAbs on their surface. *Autoimmunity* 48, 328–335.
- Naicker, M., Naidoo, S., 2018. Expression of thyroid-stimulating hormone receptors and thyroglobulin in limbic regions in the adult human brain. *Metab. Brain Dis.* 33, 481–489.
- Nicoli, F., Lanzolla, G., Mantuano, M., Ionni, I., Mazzi, B., Leo, M., Sframeli, A., Posarelli, C., Maglionico, M.N., Figus, M., Nardi, M., Marcocci, C., Marinò, M., 2021.

Correlation between serum anti-TSH receptor autoantibodies (TRAbs) and the clinical feature of Graves' orbitopathy. *J. Endocrinol. Invest.* 44, 581–585.

Noh, J.Y., Hamada, N., Inoue, Y., Abe, Y., Ito, K., Ito, K., 2000. Thyroid-stimulating antibody is related to Graves' ophthalmopathy, but thyrotropin-binding inhibitor immunoglobulin is related to hyperthyroidism in patients with Graves' disease.

Thyroid Off. J. Am. Thyroid Assoc. 10, 809–813.

Nordyke, R.A., Gilbert, F.I., Harada, A.S., 1988. Graves' disease. Influence of age on clinical findings. *Arch. Intern. Med.* 148, 626–631.

Pedersen, I.B., Knudsen, N., Perrild, H., Ovesen, L., Laurberg, P., 2001. TSH-receptor antibody measurement for differentiation of hyperthyroidism into Graves' disease and multinodular toxic goitre: a comparison of two competitive binding assays.

Clin. Endocrinol. (Oxf.) 55, 381–390.

Pfeilschifter, J., Ziegler, R., 1996. Smoking and endocrine ophthalmopathy: impact of smoking severity and current vs lifetime cigarette consumption. *Clin. Endocrinol. (Oxf.)* 45, 477–481.

Pouso-Diz, J.M., Abalo-Lojo, J.M., Gonzalez, F., 2020. Thyroid eye disease: current and potential medical management. *Int. Ophthalmol.*

Pritchard, J., Han, R., Horst, N., Cruikshank, W.W., Smith, T.J., 2003. Immunoglobulin activation of T cell chemoattractant expression in fibroblasts from patients with Graves' disease is mediated through the insulin-like growth factor I receptor pathway. *J. Immunol. Baltim. Md* 1950 170, 6348–6354.

Prummel, M.F., Wiersinga, W.M., 1993. Smoking and risk of Graves' disease. *JAMA* 269, 479–482.

Quadbeck, B., Stucke, M., Eckstein, A.K., Heise, D.J., Mann, K., Gieseler, R.K., 2006.

Dysregulation of TNF/TNFR superfamily members: a systemic link between intra-

and extrathyroidal manifestations in Graves' disease. *Scand. J. Immunol.* 64, 523–530.

R. Djokomoeljanto, 2014. *Kelenjar Tiroid, Hipotiroidisme, dan Hipertiroidisme*, in: Buku Ajar Ilmu Penyakit Dalam. Interna Publishing, Jakarta, Indonesia, pp. 1993–2008.

Rapoport, B., McLachlan, S.M., 2014. Graves' hyperthyroidism is antibody-mediated but is predominantly a Th1-type cytokine disease. *J. Clin. Endocrinol. Metab.* 99,

Ross, D.S., Burch, H.B., Cooper, D.S., Greenlee, M.C., Laurberg, P., Maia, A.L., Rivkees, S.A., Samuels, M., Sosa, J.A., Stan, M.N., Walter, M.A., 2016. 2016 American Thyroid Association Guidelines for Diagnosis and Management of Hyperthyroidism and Other Causes of Thyrotoxicosis. *Thyroid Off. J. Am. Thyroid Assoc.* 26, 1343–1421.

Savitri, Ardyarini D, 2016. *Perbandingan Kadar Thyroid Stimulating Hormone Receptor Antibody (TRAb) Pasien Penyakit Graves' dengan dan tanpa Oftalmopati*. repository Unair.

Schott, M., Hermsen, D., Broecker-Preuss, M., Casati, M., Mas, J.C., Eckstein, A., Gassner, D., Golla, R., Graeber, C., van Helden, J., Inomata, K., Jarausch, J., Kratzsch, J., Miyazaki, N., Moreno, M.A.N., Murakami, T., Roth, H.J., Stock, W., Noh, J.Y., Scherbaum, W.A., Mann, K., 2009. Clinical value of the first automated TSH receptor autoantibody assay for the diagnosis of Graves' disease (GD): an international multicentre trial. *Clin. Endocrinol. (Oxf.)* 71, 566–573.

Shan, S.J.C., Douglas, R.S., 2014. The pathophysiology of thyroid eye disease. *J. Neuro-Ophthalmol. Off. J. North Am. Neuro-Ophthalmol. Soc.* 34, 177–185.

Sikder, S., Weinberg, R.S., 2010. Thyroid eye disease: pathogenesis and treatment. *Ophthalmol. J. Int. Ophthalmol. Int. J. Ophthalmol. Z. Augenheilkd.* 224, 199–203.

Smith, T.J., Hegedüs, L., 2016. Graves' Disease. *N. Engl. J. Med.* 375, 1552–1565.

- Smith, T.J., Sciaky, D., Phipps, R.P., Jennings, T.A., 1999. CD40 expression in human thyroid tissue: evidence for involvement of multiple cell types in autoimmune and neoplastic diseases. *Thyroid Off. J. Am. Thyroid Assoc.* 9, 749–755.
- Stan, M.N., Garrity, J.A., Bahn, R.S., 2012. The evaluation and treatment of graves ophthalmopathy. *Med. Clin. North Am.* 96, 311–328.
- Subekti, I., 2018. Oftalmopati Graves: Perbandingan Karakteristik Klinis, Kadar Hormon, dan Kadar Antibodi Reseptor TSH 6, 6.
- Subekti, I., Boedisantoso, A., Moeloek, N.D., Waspadji, S., Mansyur, M., 2012. Association of TSH receptor antibody, thyroid stimulating antibody, and thyroid blocking antibody with clinical activity score and degree of severity of Graves ophthalmopathy. *Acta Medica Indonesia.* 44, 114–121.
- Suzuki, N., Yoshihara, A., Yoshimura Noh, J., Kinoshita, K., Ohnishi, J., Saito, M., Sugino, K., Ito, K., 2020. TRAb elevations occurred even in the third trimester; a case of a mother of a child with neonatal thyroid dysfunction, who received radioactive iodine therapy for Graves' disease. *Endocr. J.* 67, 1019–1022.
- Szkudlarek, A.C., Aldenucci, B., Miyagui, N.I., Silva, I.K., Moraes, R.N., Ramos, H.E., Fogaça, R.T.H., 2014. Short-term thyroid hormone excess affects the heart but does not affect adrenal activity in rats. *Arq. Bras. Cardiol.* 102, 270–278.
- Tomer, Y., 2014. Mechanisms of autoimmune thyroid diseases: from genetics to epigenetics. *Annu. Rev. Pathol.* 9, 147–156.
- Tozzoli, R., Bagnasco, M., Giavarina, D., Bizzaro, N., 2012. TSH receptor autoantibody immunoassay in patients with Graves' disease: improvement of diagnostic accuracy over different generations of methods. Systematic review and meta-analysis. *Autoimmun. Rev.* 12, 107–113.

- Tozzoli, R., D'Aurizio, F., Villalta, D., Giovanella, L., 2017. Evaluation of the first fully automated immunoassay method for the measurement of stimulating TSH receptor autoantibodies in Graves' disease. *Clin. Chem. Lab. Med.* 55, 58–64.
- Wakelkamp, I.M.M.J., Bakker, O., Baldeschi, L., Wiersinga, W.M., Prummel, M.F., 2003. TSH-R expression and cytokine profile in orbital tissue of active vs. inactive Graves' ophthalmopathy patients. *Clin. Endocrinol. (Oxf.)* 58, 280–287.
- Wang, Y., Patel, A., Douglas, R.S., 2019. Thyroid Eye Disease: How A Novel Therapy May Change The Treatment Paradigm. *Ther. Clin. Risk Manag.* 15, 1305–1318.
- Weetman, A.P., Yateman, M.E., Ealey, P.A., Black, C.M., Reimer, C.B., Williams, R.C., Shine, B., Marshall, N.J., 1990. Thyroid-stimulating antibody activity between different immunoglobulin G subclasses. *J. Clin. Invest.* 86, 723–727.
- Weetman, A.P., 2000. Graves' disease. *N. Engl. J. Med.* 343, 1236–1248.
- Weiler, D.L., 2017. Thyroid eye disease: a review. *Clin. Exp. Optom.* 100, 20–25.
- Werner, S.C., 1977. Modification of the classification of the eye changes of Graves' disease. *Am. J. Ophthalmol.* 83, 725–727.
- Werner, S.C., 1969. Classification of the eye changes of Grave's disease. *J. Clin. Endocrinol. Metab.* 29, 982–984.
- Wiersinga, W.M., 2019. Graves' Disease: Can It Be Cured? *Endocrinol. Metab. Seoul Korea* 34, 29–38.
- Zimmermann, M.B., Boelaert, K., 2015. Iodine deficiency and thyroid disorders. *Lancet Diabetes Endocrinol.* 3, 286–295.