

# BÖLÜM 7

## HİPOTİROİDİZM VE CERRAHİ

Osman BARDAKÇI<sup>1</sup>  
İbrahim Burak BAHÇECİOĞLU<sup>2</sup>

Dolaşımdaki tiroid hormon eksikliği sonucunda oluşan ve tedavi edilmezse, ciddi sağlık problemlerine ve nihayetinde ölüme yol açabilen bir hastalıktır. Yeni doğanlarda hipotiroidizm nörolojik bozukluklara ve mental retardasyon kliniği ile karşımıza çıkan kretenizme neden olabilir. Hipotiroidizm; organ sistemleri üzerinde fonksiyon ve metabolizma bozukluklarına neden olarak farklı semptomlar görülmesine neden olabilirler

### EPİDEMİYOLOJİ

Hipotiroidizm; toplumda sık görülen bir hastalıktır. Kadınlarda, yaşlılarda ve belirli etnik gruplarda daha yaygın görülmektedir. Hipotiroidide klinik olarak TSH seviyesi yüksek ve FT<sub>4</sub> seviyeleri düşük olabilirken; subklinik hipotiroidide, FT<sub>4</sub> seviyeleri yüksek, serum TSH ise normaldir. Bu durumun geçerli olabilmesi için, sağlam bir hipotalamik-hipofiz-tiroid eksenini, eşzamanlı hastalık olmaması ve bu eğilimin en az 4 haftalık bir süre boyunca tekrarlanabilir olması gerekir. Amerika Birleşik Devletleri, Avrupa ve Japonya'daki çalışmalarda hipotiroidizm prevalansının kadınlarda % 0,06 ile % 0,12 arasında ve

erkeklerde % 0,13 ile % 0,4 arasında olduğu bildirilmiştir (1). Hipotiroidizm, iyot alımı nispeten yüksek olan veya ciddi derecede iyot eksikliği olan popülasyonlarda daha sık görülmektedir (2-3). Hipotiroidizm kadınlarda, yaşlılarda (> 65 yaş) ve beyaz bireylerde daha sık tespit edilir (4-5). Hipotiroidizm, tip 1 diyabet, otoimmün mide atrofisi ve çölyak hastalığı gibi otoimmün hastalıkları olan hastalarda daha yaygındır ve çoklu otoimmün endokrinopatilerin bir parçası olarak ortaya çıkabilir. Down sendromlu veya Turner sendromlu bireylerde hipotiroidizm riski yükselir (6).

Konjenital hipotiroidizme yol açan monogenetik bozukluklar nadirdir ve TSH direncini (TSH reseptöründeki inaktive edici bir mutasyona bağlı olarak) tiroid disgenезini ve tiroid disomogenезini kapsar (7).

### Etyoloji

Hipotiroidizm, primer (tiroid hormon eksikliğine bağlı), sekonder (TSH eksikliğine bağlı), tersiyer (tirotropin salgılayan hormon eksikliğine bağlı) olarak sınıflandırılabilir. Sekonder ve tersiyer hipotiroidizm santral hipotiroidizm

<sup>1</sup> Op. Dr., Gülhane Eğitim Araştırma Hastanesi, e-mail: drosmanbardakci@gmail.com

<sup>2</sup> Op. Dr., Gülhane Eğitim Araştırma Hastanesi, e-mail: dribb@hotmail.com

## KAYNAKLAR

- Vanderpump MP. The epidemiology of thyroid disease. *British medical bulletin*, 2011;99: 39–51.
- Laurberg, P., Cerqueira, C., Ovesen, et al. Iodine intake as a determinant of thyroid disorders in populations. *Best Practice & Research Clinical Endocrinology & Metabolism*, 2010; 24(1), 13-27.
- Teng W, Shan Z, Teng X, et al. Effect of iodine intake on thyroid diseases in China. *New England Journal of Medicine*, 354(26), 2783-2793.
- Sichieri R, Baima J, Marante T, et al. Low prevalence of hypothyroidism among black and Mulatto people in a population-based study of Brazilian women. *Clinical endocrinology*, 66(6), 803-807.
- McLeod DS, Caturegli P, Cooper DS et al. Variation in rates of autoimmune thyroid disease by race/ethnicity in US military personnel. *Jama*, 311(15), 1563-1565
- Carlé A, Pedersen IB, Knudsen N, et al. Moderate alcohol consumption may protect against overt autoimmune hypothyroidism: a population-based case–control study. *European journal of endocrinology*, 167(4), 483-490.
- Medici M, Visser WE, Visser TJ, et al. Genetic determination of the hypothalamic-pituitary-thyroid axis: where do we stand?. *Endocrine reviews*, 36(2), 214-244
- Persani, Luca. “Central hypothyroidism: pathogenic, diagnostic, and therapeutic challenges.” *The Journal of Clinical Endocrinology & Metabolism* 97.9 (2012): 3068-3078.
- Hollowell, J. G., Staehling, N. W., Flanders, et al. Serum TSH, T<sub>4</sub>, and thyroid antibodies in the United States population (1988 to 1994): National Health and Nutrition Examination Survey (NHANES III). *The Journal of Clinical Endocrinology & Metabolism*, 87(2), 489-499.
- Medici M, Porcu E, Pistis G, et al. Identification of novel genetic Loci associated with thyroid peroxidase antibodies and clinical thyroid disease. *PLoS Genet* 2014; 10: e1004123.
- Schultheiss UT, Teumer A, Medici M, et al. A genetic risk score for thyroid peroxidase antibodies associates with clinical thyroid disease in community-based populations. *J Clin Endocrinol Metab* 2015; 100: e799–807.
- Effraimidis G, Tijssen JG, Wiersinga WM. Discontinuation of smoking increases the risk for developing thyroid peroxidase antibodies and/or thyroglobulin antibodies: a prospective study. *J Clinical Endocrinology Metabolism* 2009; 94: 1324–28.
- Belin RM, Astor BC, Powe NR, et al. Smoke exposure is associated with a lower prevalence of serum thyroid autoantibodies and thyrotropin concentration elevation and a higher prevalence of mild thyrotropin concentration suppression in the third National Health and Nutrition Examination Survey (NHANES III). *J Clin Endocrinology Metabolism* 2004; 89: 6077–86.
- Wu Q, Rayman MP, Lv H, et al. Low population selenium status is associated with increased prevalence of thyroid disease. *Journal Clinical Endocrinology Metabolism* 2015; 100: 4037–47
- Bougma K, Aboud FE, Harding KB, Marquis GS. Iodine and mental development of children 5 years old and under: a systematic review and meta-analysis. *Nutrients* 2013; 5: 1384–416.
- World Health Organization. “Assessment of iodine deficiency disorders and monitoring their elimination: a guide for programme managers.” (2007).
- Bath SC, Steer CD, Golding J, et al. Effect of inadequate iodine status in UK pregnant women on cognitive outcomes in their children: results from the Avon Longitudinal Study of Parents and Children (ALSPAC). *Lancet* 2013; 382: 331–37
- Caldwell KL, Pan Y, Mortensen ME, et al. Iodine status in pregnant women in the National Children’s Study and in US women (15–44 years), National Health and Nutrition Examination Survey 2005–2010. *Thyroid*, 23(8), 927-937.
- Teng X, Shan Z, Chen Y, et al. More than adequate iodine intake may increase subclinical hypothyroidism and autoimmune thyroiditis: a cross-sectional study based on two Chinese communities with different iodine intake levels. *European journal of endocrinology*, 164(6), 943.
- Zimmermann MB, Boelaert K. Iodine deficiency and thyroid disorders. *Lancet Diabetes Endocrinology* 2015; 3: 286–95.
- Zhong B, Wang Y, Zhang G, et al. Environmental iodine content, female sex and age are associated with new-onset amiodarone-induced hypothyroidism: a systematic review and meta-analysis of adverse reactions of amiodarone on the thyroid. *Cardiology* 2016; 134: 366–71.
- Shine B, McKnight RF, Leaver L, et al. Long-term effects of lithium on renal, thyroid, and parathyroid function: a retrospective analysis of laboratory data. *Lancet* 2015; 386: 461–68.

23. Shulman KI, Sykora K, Gill SS, et al. New thyroxine treatment in older adults beginning lithium therapy: implications for clinical practice. *Am J Geriatric Psychiatry* 2005; 13: 299–304.
24. Torino F, Corsello SM, Longo R, et al. Hypothyroidism related to tyrosine kinase inhibitors: an emerging toxic effect of targeted therapy. *Nature reviews Clinical oncology*, 6(4), 219.
25. Kahraman D, Keller C, Schneider C, et al. Development of hypothyroidism during long-term follow-up of patients with toxic nodular goitre after radioiodine therapy. *Clinical Endocrinology* 2012; 76: 297–303.
26. Krohn T, Hänscheid H, Müller B, et al. Maximum dose rate is a determinant of hypothyroidism after <sup>131</sup>I therapy of Graves' disease but the total thyroid absorbed dose is not. *Journal Clinical Endocrinology Metabolism* 2014; 99: 4109–15.
27. Lee V, Chan SY, Choi CW, et al. Dosimetric predictors of hypothyroidism after radical intensity-modulated radiation therapy for non-metastatic nasopharyngeal carcinoma. *Clinical Oncology*, 28(8), e52-e60.
28. Verloop H, Louwerens M, Schoones JW, et al. Risk of hypothyroidism following hemithyroidectomy: systematic review and meta-analysis of prognostic studies. *Journal Clinical Endocrinology Metabolism* 2012; 97: 2243–55.
29. Vogelius IR, Bentzen SM, Maraldo MV, Petersen PM, Specht L. Risk factors for radiation-induced hypothyroidism: a literature-based meta-analysis. *Cancer* 2011; 117: 5250–60.
30. Beynon J, Akhtar S, Kearney T. Predictors of outcome in myxoedema coma. *Critical Care* 2008; 12: 111.
31. Wiersinga WM, Feingold KR, Anawalt B, et al. Myxedema and Coma (Severe Hypothyroidism), *Endotext* 2000
32. Gao X, Liu M, Qu A, et al. Native magnetic resonance T1-mapping identifies diffuse myocardial injury in hypothyroidism. *PloS one*, 11(3), e0151266.
33. Tiller D, Ittermann T, Greiser KH, et al. Association of serum thyrotropin with anthropometric markers of obesity in the general population. *Thyroid* 2016; 26: 1205–14.