

Systemic Lupus Erythematosus and Thyroid Cancer Diagnosis

Yutaka Kawano*

Department of Medical Microbiology and Immunology, University of Wisconsin, Wisconsin, Madison Department of Infectious Diseases, Immunology, and Allergy, Saitama Children's Medical Center, 1-2 Shintoshin, Chuou-ku, Saitama 330-8777, Japan

COMMENTARY

Several studies have clearly shown an increased incidence of thyroid cancer in patients with SLE. Despite many intensive studies, the mechanism of SLE thyroid malignancies is unclear. Patient backgrounds and treatments vary from country to country, making clear analysis difficult. The further availability of ultrasonography should not only uncover SLE patients with thyroid cancer, but also add new aspects to the risk factors for malignant thyroid tumors of SLE in the near future.

Systemic Lupus Erythematosus (SLE) has long been recognized as having a high incidence of malignancies, including thyroid cancer, as shown in recent reviews [1-4]. Several meta-analyses support this finding [5-8]. Many cohort studies around the world have shown increased prevalence of thyroid malignancies across geography, race, and ethnicity [9-22]. A definitive analysis leading to thyroid cancer predisposition to SLE has not yet been achieved. Autoimmunity, which is thought to be the major cause of SLE, also promotes thyroid immunity and causes the development of cancer [1,2,9]. Some study has suggested a long course of disease as a facilitator [23]. Others have mentioned the involvement of drugs in the progression of thyroid cancer: azathioprine may accelerate thyroid cancer [19], but hydroxychloroquine may protect its development [17].

The etiology of SLE itself has not been clearly elucidated, and symptoms vary from patient to patient. In addition, treatment options are wide-ranging and their availability varies from country to country. Such variability may be a hurdle in the analysis of risk factors for developing thyroid cancer in SLE.

Moreover, it seems that chance of identifying thyroid malignancies varies from physician to physician. Some rheumatologists are eager to find thyroid diseases by ultrasonography; others rarely use such medical modalities with fewer burdens on the patients. In fact, our diagnostic approach to thyroid cancer was found to be uneven, based on a 2018 survey of Japanese pediatric rheumatologists, including 19 major Japanese specialists. In our survey, the rate of ultrasound testing was 0% 8 facilities (42%), 1%-20% 9 facilities (47%), 21%-40% 0 facilities (0%), 41%-60% 1 facility (5%), 61%-80% 1 facility (5%), 81%-100% 0 facilities (0%).

As is widely recognized, the first diagnostic approach to thyroid

cancer should be ultrasonography followed by surgical biopsy [24]. Despite the exponential increase in the usefulness of ultrasound for the assessment of arthritis in rheumatology, rheumatologists are not keen on detecting thyroid cancer by ultrasonography. In the near future, the use of ultrasound is expected to detect widespread thyroid cancer in patients with SLE and the causes of high-rate thyroid cancer in SLE can be elucidated.

In addition, our diagnostic approach to thyroid cancer was found to be non-uniform, based on our survey of Japanese pediatric rheumatologists. The first diagnostic approach to thyroid cancer should be ultrasonography followed by surgical biopsy [24]. Despite the exponential increase in the usefulness of ultrasound for the assessment of arthritis in rheumatology, rheumatologists are not keen on detecting thyroid cancer by ultrasonography. In the near future, the use of ultrasound is expected to detect widespread thyroid cancer in patients with SLE.

REFERENCES

1. Ferrari SM, Elia G, Virili C, Centanni M, Antonelli A, Fallahi P. Systemic lupus erythematosus and thyroid autoimmunity. *Front. Endocrinol.*2017;8:138.
2. Goobie GC, Bernatsky S, Ramsey-Goldman R, Clarke AE. Malignancies in systemic lupus erythematosus: A 2015 update. *Curr Opin Rheumatol.*2015;27:454-460.
3. Klionsky Y, Antonelli M. Thyroid disease in lupus: An updated review. *ACR Open Rheumatology.*2020;2:74-78.
4. Ladouceur A, Clarke AE, Ramsey GR, Bernatsky S. Malignancies in systemic lupus erythematosus: An update. *Current Opinion in Rheumatology.*2019;31:678-81.
5. Cao L, Tong H, Xu G, Liu P, Meng H, Wang J, et al. Systemic lupus erythematosus and malignancy risk: a meta-analysis. *Plos One.*2015;10:e0122964.
6. Mao S, Shen H, Zhang J. Systemic lupus erythematosus and malignancies risk. *Clinical Oncology.* 2016;142:253-262.
7. Song L, Wang Y, Zhang J, Song N, Xu X, Lu Y. The risks of cancer development in systemic lupus erythematosus (SLE) patients: a systematic review and meta-analysis. *Arthritis Research & Therapy.*2018;20:270.

Correspondence to: Yutaka Kawano, Department of Infectious Diseases, Immunology, and Allergy, Saitama Children's Medical Center, 1-2 Shintoshin, Chuou-ku, Saitama 330-8777, Japan; Email: kawano.yutaka@scmc.pref.saitama.jp

Received: March 08, 2021 **Accepted:** March 22, 2021 **Published:** March 29, 2021

Citation: Kawano Y (2021) Systemic Lupus Erythematosus and Thyroid Cancer. *Lupus: Open Access* 6:2.164

Copyright: © 2021 Kawano Y. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited..

8. Zhang M, Li XM, Wang GS, Qian L, Tao JH, Ma Y, et al. Thyroid cancer in systemic lupus erythematosus: a meta analysis. *PLoS One*.2014;7:6270-6273.
9. Antonelli A, Mosca M, Fallahi P, Neri R, Ferrari SM, D'Ascanio A, et al. Thyroid cancer in systemic lupus erythematosus: A case-control study.clinical endocrinology and metabolism.2010;95:314-318.
10. Bae EH, Lim SY, Han KD, Jung JH, Choi HS, Kim CS, et al. Systemic lupus erythematosus is a risk factor for cancer: a nationwide population- based study in Korea. *Lupus*.2019;28:317-323.
11. Bernatsky S, Boivin JF, Joseph L, Rajan R, Zoma A, Manzi S, et al. An international cohort study of cancer in systemic lupus erythematosus. *Arthritis and Rheumatism*.2005;52:1481-1490.
12. Bernatsky S, Ramsey GR, Labrecque J, Joseph L, Boivin JF, Petri M, et al. Cancer risk in systemic lupus: an updated international multi-centre cohort study. *Journal of Autoimmunity*.2013;42:130-135.
13. Bernatsky S, Ramsey-Goldman R, Urowitz MB, Hanly JG, Gordon C, Petri MA, et al. Cancer risk in a large inception SLE cohort: Effects of demographics, smoking, and medications. *Arthritis care & research*. 2020.
14. Bjornadal L, Lofstrom B, Yin L, Lundberg IE, Ekblom A. Increased cancer incidence in a Swedish cohort of patients with systemic lupus erythematosus. *Scandinavian Journal of Rheumatology*. 2002;31:66-71.
15. Cader RA, Mei Yee AK, Yassin A, Ahmad I, Haron SN. Malignancy in Systemic Lupus Erythematosus (SLE) Patients. *Asian Pac J Cancer Prev*. 2018 ;25;19:3551-5.
16. Dreyer L, Faurschou M, Mogensen M, Jacobsen S. High incidence of potentially virus-induced malignancies in systemic lupus erythematosus: A long-term followup study in a Danish cohort. *Arthritis and Rheumatism*. 2011;63(10):3032-7.
17. Guo J, Ren Z, Li J, Li T, Liu S, Yu Z. The relationship between cancer and medication exposure in patients with systemic lupus erythematosus: a nested case-control study. *Arthritis Research & Therapy*. 2020;22(1):159.
18. Parikh-Patel A, White RH, Allen M, Cress R. Cancer risk in a cohort of patients with systemic lupus erythematosus (SLE) in California. *Cancer Causes Control*. 2008;19:887-94.
19. Quintanilla-Flores DL, Hernandez-Coria MI, Elizondo-Riojas G, Galarza-Delgado DA, Gonzalez-Gonzalez J, Tamez-Perez HE, et al. Thyroid nodules in Hispanic patients with systemic lupus erythematosus; 2013; 1477-0962 (Electronic) 0961-2033 (Linking).
20. Ragnarsson O, Grondal G, Steinsson K. Risk of malignancy in an unselected cohort of Icelandic patients with systemic lupus erythematosus. *Lupus*. 2003;12:687-91.
21. Yu KH, Kuo CF, Huang LH, Huang WK, See LC. Cancer Risk in Patients With Inflammatory Systemic Autoimmune Rheumatic Diseases: A Nationwide Population-Based Dynamic Cohort Study in Taiwan. *Medicine*. 2016;95:3540.
22. Yun JS, Bae JM, Kim KJ, Jung YS, Kim GM, Kim HR, et al. Increased risk of thyroid diseases in patients with systemic lupus erythematosus: A nationwide population-based Study in Korea. *PloS One*. 2017;12:e0179088.
23. Guo JY, Ren ZG, Xuan YY, Li TF, Liu XJ, Niu CZ, et al. Clinical characteristics and risk factors of patients with systemic lupus erythematosus and cancer. *Zhonghuanweikezhazhi*. 2020 1;59:218-21.
24. Kawano Y, Nambu M, Uejima Y, Sato S, Suganuma E, Takano T, et al. Risk Factors for Thyroid Cancer in Systemic Lupus Erythematosus. *Glob Pediatr Health*. 2017;4:233379-17736700.