Chapter 5

IS THERE ANY EFFECT OF SEX HORMONES ON CHRONIC URTICARIA?

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Role of estrogens has been clearly demonstrated in bradykinin associated angioedema (AE) but limited data are available about the role of sex hormones in chronic urticaria (CU). The aim of this study was to show relationship between impact on the urticaria attack and the change of hormone levels in hormonal cycle (fertile period, pregnancy, menopause etc.) and age in womens with chronic urticaria.

INTRODUCTION

Urticaria is a most common skin disorder seen in everyday allergy practice. It is characterized by the development of wheals, AE, or both. Acute urticaria is primarily related to allergic or pseudoallergic reaction to food, drugs, or infections, CU is a more complicated disease with different additional ethiopathologic mechanisms and inducible factors. In CU, duration of the disease is more than six weeks. The life time prevalence of urticaria is 8.8% to 20% and this rate 1.8% for CU.

CU is a common skin disease with considerable reflection on the quality of life and a relevant socioeconomic influence.

CU is included among the skin diseases that demonstrated a significant female majority, with an average female to male ratio of nearly 2-4/1. CU seriously affects the quality of life of the patients and results in difficulties in relation to work, family activities, social life, home relation-ships, sexual life, sleep, hobbies, school productivity and holidays.

We were collected information from a population of women with various forms of chronic spontaneous urticaria (CSU), including a classic subtype of association of wheals and AE, and exclusive inducible urticaria (IU) about the impact of sex hormones and reproductive factors on their symptoms.

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factors triggering urticaria attacks. When the triggering factors were examined; 53.1% (n = 52) warm, 5.1% (n = 5) cold, 30.6% (n = 30) drug, 81.6% (n = 80) stress, 45.9% (n = 45) pressure, 37.8% (n = 37) sun and 15.4% (n = 16) other factors (food, house dust, pollen and metal) were determined. Considering to the duration of urticaria; a statistically significant difference was found between the rates seen of factors triggering on urticaria attacks (p = 0.041; p <0.05). The rate of triggering factors in patients with urticaria duration less than 1 year have been found to be lower than other patients. According to the duration of urticaria; the rate of urticaria atacks triggering of the sun was statistically significant (p = 0.008; p <0.01). The rate at which the sun's effect is triggered in cases with urticaria duration less than 1 year was found to be lower than 10 years. According to the duration of urticaria; warm, cold, stress, pressure and other triggering factors effect of rate in urticaria attacks were no show a statistically significant difference (p> 0.05).

CONCLUSION

The results of our study do not support a major efficacy of sex hormones or hormonal treatment in most women with CU. However, a small proportion of women can described their hormonal changes was effected symptoms of urticaria. Nevertheless, sex hormones should be considered in the mana-gement of he patient with CU. Furthermore comprehensive studies are needed for this about.

Abbreviations: chronic urticaria (CU), chronic spontaneous urticaria (CSU), angioedema (AE) chronic inducible urticaria (CIU).

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REFERENCES

- Andre, F., Veysseyre-Balter, C., Rousset, H., Descos, L. & Andre, C. (2003). Exogenous oestrogen as an alternative to food allergy in the aetiology of angioneurotic oedema. Toxicology. 85(1-2),155-160.
- Amsler, E., Augey, F., Soria, A., Boccon-Gibod, I., Doutre, M,S., Mathelier-Fusade, P., Nicolas, JF., Rayson-Peyron, N. & Gompel, A. (2016). Chronic urticaria and hormones: Is there a link?. J Eur Acad Dermatol Venereol., 30 (9),1527-1530. Doi:10.1111/ jdv. 13644

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- Bork, K., Fischer, B., & Dewald, G. (2003). Recurrent episodes of skin angioedema and severe attacks of abdominal pain induced by oral contraceptives or hormone replacement therapy. Am J Med., 114, 294-298.
- Cassano, N., Colombo, D., Bellia, G., Zagni, E. Vena, G.A. (2016) Gender-related differences in chronic urticaria. G Ital Dermatol Venereol, 151 (5), 544-552.
- Chen, W., Beck, I., Schober, W., Brockow, K., Effner R., Buters, J.T. & al. (2010). Human mast cells express androgen receptors but treatment with testosterone exerts no influence on IgE-independent mast cell degranulation elicited by neuromuscular blocking agents. Exp Dermatol., 19, 302-304. Doi:10.1111/j.1600-0625.2009.00969.x.
- Chen, W., Mempel, M., Schober, W., Behrendt, H. & Ring, J. (2008). Gender difference, sex hormones, and immediate type hypersensitivity reactions. Allergy, 63, 1418-1427. Doi: 10.1111/j.1398-9995.2008.01880.x
- Chen, W., Mempel, M., Traidl-Hofmann, C., Al Khusaei, S. & Ring, J. (2010). Gender aspects in skin diseases. J Eur Acad Dermatol Venereol., 24,1378-1385. Doi:10.1111/j.1468-3083.2010.03668.x
- Cocchiara, R., Albeggiani, G., Di Trapani, G. & al. (1990). Modulation of rat peritoneal mast cell and human basophil histamine release by estrogens. Int Arch Allergy Appl Immunol., 93 (2-3),192-197.
- Guhl, S., Artuc, M., Zuberbier, T. & Babina, M. (2012). Testosterone exerts selective antiinflammatory effects on human skin mast cells in a cell subset dependent manner. Exp Dermatol., 21,878-880. Doi: 10.1111/exd.12006
- Hox, V., Desai, A., Bandara, G., Gilfillan, A.M., Metcalfe, D.D. & Olivera, A. (2015). Estrogen increases the severity of anaphylaxis in female mice through enhanced endothelial nitric oxide synthase expression and nitric oxide production. J Allergy Clin Immunol., 135:729-736. Doi: 10.1016/j.jaci.2014.11.003
- Humphreys, F. & Hunter, J.A.A. (1998). The characteristics of urticaria in 390 patients. Br J Dermatol., 138, 635-638.
- Jensen-Jarolim, E. & Untersmayr, E. (2008). Gender-medicine aspects in allergology. Allergy, 63,610-615. Doi: 10.1111/j.1398-9995.2008.01645.x
- Kasperska-Zajac, A., Brzoza, Z., Rogala, B. (2006). Lower serum concentration of dehydroepiandrosterone sulphate in patients with chronic idiopathic urticaria. Allergy, 61,1489-1490. Doi: 10.1111/j.1398-9995.2006.01185.x
- Kasperska-Zajac, A., Brzoza, Z. & Rogala, B. (2008). Sex hormones and urticaria. J Dermatol Sc., 52(2), 79-86. Doi: 10.1016/j.jdermsci.2008.04.002
- Kasperska-Zając, A. & Zamlynski, J. (2012). Chronic urticaria and irregular menstrual cycle: A case report of effective therapy with oral contraception. J Dermatolog Treat., 23,159-160. Doi: 10.3109/09546634.2010.499933
- O'Donnell, B.F., Lawlor, F., Simpson, J., & al. (1997). The impact of chronic urticaria on the quality of life. Br J Dermatol., 136,197-201
- Schatz, M. & Zeiger, R.S. (1997). Asthma and allergy in pregnancy. Clin Perinatol., 24,407-432.
- Slater, J.E. & Kaliner, M. (1987). Effects of sex hormones on basophil histamine release in recurrent idiopathic anaphylaxis. J Allergy Clin Immunal., 80, 285-290.
- Vasiadi, M., Kempuraj, D., Boucher, W., Kalogeromitros, D. & Theoharides, T.C. (2006). Progesterone inhibits mast cell secretion. Int J Immunopathol Pharmacol., 19,787-794. Doi: 10.1177/039463200601900408
- Zaitsu, M., Narita, S., Lambert, K.C., Grady, J.J., Estes, D.M., Curran, E.M., Brooks, E.G. & *al.* (2007). Estradiol activates mast cells via a non-genomic estrogen receptor-alp-

ha and calcium influx. Mol Immunol., 44,1977-1985. Doi:10.1016/.molimm.2006. 09.030

- Zierau, O., Zenclussen, A.C. & Jensen, F. (2012). F. Role of female sex hormones, estradiol and progesterone, in mast cell behavior. Front Immunol.,3,169. Doi: 10.3389/ fimmu.2012. 00169
- Zhong, H., Song, Z., Chen, W., Li, H., He, L., Gao, T. & al. (2014). Chronic urticaria in Chinese population: a hospital-based multicenter epidemiological study. Allergy, 69,359-364. Doi: 10.1111/all.12338
- Zuberbier, T. (2012). Pharmacological rationale for the treatment of chronic urticaria with second-generation non-sedating antihistamines at higher than- standard doses. J Eur Acad Dermatol Venereol., 26, 9-18. Doi: 10.1111/j.1468-3083.2011.04185.x
- Zuberbier, T., Asero, R., Bindslev-Jensen, C. & al. (2009). EAACI/GA (2) LEN/EDF/ WAO guideline: definition, classification and diagnosis of urticaria. Allergy, 64,1417-1426. Doi: 10.1111/j.1398-9995.2009.02178.x
- Zuberbier, T., Balke, M., Worm, M. & al. (2010). Epidemiology of urticaria: a representative cross-sectional population survey. Clin Exp Dermatol., 35,869-873. Doi: 10.1111/j.1365-2230.2010.03840.