



CURRENT EPIDEMIOLOGY OF LICHEN SIMPLEX CHRONICUS

Filka Georgieva

Department of Dermatology and Venereology, Faculty of Medicine, Medical University- Varna, Bulgaria

ABSTRACT

Background Lichen Simplex Chronicus (LSC) is a common extremely pruritic dermatoses affecting seriously the wellbeing of patients. Although the diagnosis is easily confirmed the therapy is still a challenge for specialists.

The **aim of the study** was to update the epidemiology of LSC.

Objective and Methods To assess the tendencies in distribution of LSC were analyzed data collected from registers of Medical Centre "St. Anna" Varna from January 2007 till July 2015. Data include reports of 39968 outpatients with different skin problems. The model of the study was retrospective and investigates the total morbidity, gender distribution, age distribution, peak condition and place of the disease in the structure of selected chronic recurrent dermatoses with negative impact on quality of life. Data were collected and processed after obtaining written permission from the leadership of MC "St. Anna" Varna.

Results. The overall frequency of LSC was 4.04%. It increased from 2.59% (2007) to 4.62% (2015). Results show a tendency of rejuvenation of LSC with two peaks of morbidity: over 65 years of age 11.87% and second in the range 25-30 years -10.77%.The the ratio female / male is established to 1.2: 1.The distribution analysis shows the prevalence of LSC in winter season – January 5.14%, February – 4.57% and low morbidity in summer months - July 1.92% and August 0.66%. ($p = 0.001$) The distribution of LSC was compared with that of several skin diseases with a chronic course and a negative influence on the quality of life of patients. Results show increasing of LSC from 3.36% (2008) to 4.55% (2014) ($p = 0.001$).

Conclusion This is the first study in our country, which aims to update the epidemiology of LSC.

Key words Epidemiology, Lichen simplex chronicus, morbidity

INTRODUCTION

Lichen simplex chronicus (LSC) is a chronic skin condition occurring as a result of traumatic injury (scratching) of the skin. Constant irritation due to strong and uncontrollable itching formed infiltrated plaques [1]. The condition has been estimated to occur in 12% of the popu-

lation [2]. The highest prevalence is middle to late adulthood, with a peak at 30-50 years. Pathogenesis of this dermatosis is not well distinguished. Disorders of skin barrier are described as a trigger or enhance pathological symptoms of LSC [3]. On the other hand, in the pathogenesis of LSC an important role have psychological factors. [4] The dominant symptom in LSC is pruritus. [1] Although LSC is quite common disease with strong impact on quality of patients' life there are not recent studies on its distribution and morbidity. The purpose of this study was to update the epidemiology of LSC.

OBJECTIVE AND METHODS

To assess the tendencies in distribution of LSC were analyzed data collected from registers of Medical Centre "St. Anna" Varna from January 2007 till July 2015. Data include reports of 39968 outpatients with different skin problems. Taking into account the specifics of LSC all patients younger than 18 years of age were excluded and finally observed data include 31 981 dermatologic outpatients. Diagnosis LSC was placed in 1305 cases (4.08%).

Data were collected and processed after obtaining written permission from the leadership of MC "St. Anna" Varna

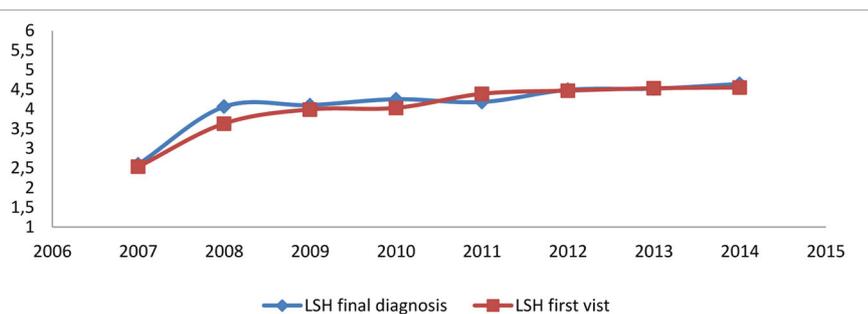
The model of the study was retrospective study. We analyzed the total morbidity, gender distribution, age distribution, peak condition and place of the disease in the structure of selected chronic recurrent dermatoses with negative impact on quality of life.

The statistical analysis was performed with SPSS v.21.0 for Windows. Hypotheses were tested using χ^2 -criteria (for the descriptive profile data). Results with $p < 0.001$ were interpreted as statistically significant.

RESULTS

Taking into account the specifics of LSC all patients younger than 18 years of age were excluded and finally observed data include 31 981 dermatologic outpatients. Results show the overall frequency of LSC was 4.04%. As 1042 (79.84%) diagnosed in primary visit and 263 (20.16%) during checkup. We observed significant trend of increasing morbidity over the years. As in 2007 morbidity was 2.59 % and in 2014- 4.62% ($p = 0.002$) (Figure 1)

Fig. 1. Morbidity of LSH



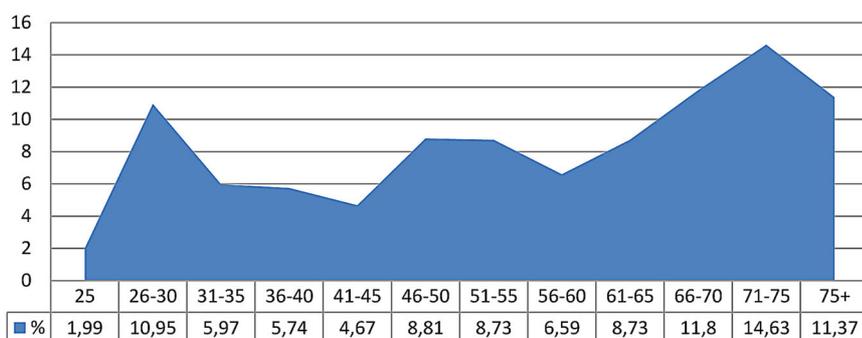
The distribution according the gender show the ratio female / male to 1.2: 1 For a period of 102 months 571 (54.79%) female and 471 (45.20%) male at first visit and 141 (53.61%) female and 122 (46.38%) male at checkup were diagnosed with LSH (Table 1)

Table 1. Gender distribution

period	LSH First visit	female n/%	male n/%	LSH chec kup	female n/%	male n/%	total	female n/%	male n/%
2007	51	28(54,90)	23(45.09)	13	7(53.84)	6(46.15)	64	35(54.69)	29(45.31)
2008	90	49(54,44)	41(45.55)	36	20(55.56)	16(44.44)	126	69(54.76)	57(45.23)
2009	136	73(53,67)	63(46.32)	36	20(55.55)	16(44.44)	172	93(54.06)	79(45.93)
2010	141	80(56,73)	61(43.26)	43	24(55.81)	19(44.19)	184	104(56.52)	80(43.34)
2011	183	104(56,83)	79(43.17)	36	20(55.55)	16(44.44)	219	124(56.62)	95(43.37)
2012	137	73 (53.47)	64 (46.55)	35	19(54.28)	16(45.71)	172	92(53.48)	80(46.51)
2013	94	50 (53.19)	44 (46.80)	10	5(50)	5(50)	104	55(52.88)	49(47.11)
2014	137	72 (52.55)	65 (47.77)	37	17(45.94)	20(54.05)	174	89(51.14)	85(48.85)
july 2015	73	42 (57.53)	31 (42.46)	17	9(52,94)	8(47,05)	90	51(56.66)	39(43.44)
total	1042	571(54.79)	471(45.20)	263	141(53,61)	122(46.38)	1305	712(54.55)	593(45,45)

Results from distribution according the age show two peaks of LSH: over 65 years of age 11.87% and second in the range 25-30 years -10.75% .The exact distributions is shown on figure 2

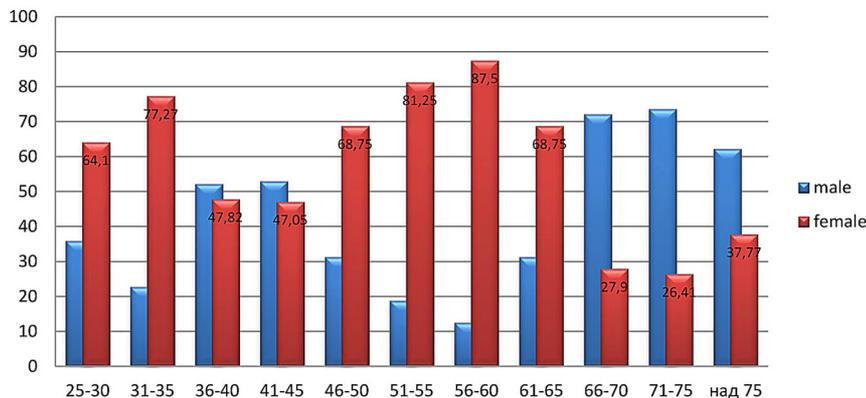
Fig. 2. Distribution according age



The results of the comparison of age and gender of the patients show that in younger age groups most of patients are female and this ratio changes with increasing of

age in favor of male. In group 25-30 years the ratio female / male is 1.7: 1, and at the age 65 up years, this ratio has been 1: 2.3, which is dominated by male patients. (Figure 3)

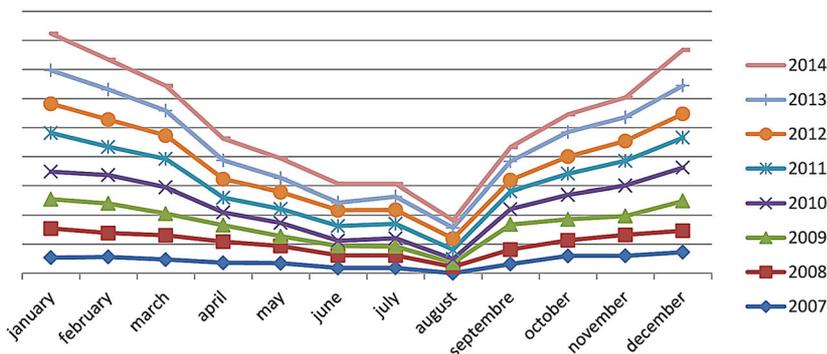
Fig. 3. Distribution according crossing age and gender



In analyzing the possible seasonal distribution of the disease the following results were reported. We estimate a peak of morbidity during the autumn- winter season, and a strong reduction in July and August. The highest rate is found during the months January mean 5.14% (range 2.7%

-6.6%), February –mean 4.57% (range 2.81% -5.17%) and - December mean 4.44% (range 3.63% -6.14%) The lowest morbidity was in July mean 1.92% (range 0.92 % - 2.28%) and August mean 0.66% . (range 0 % -1.85%) (figure 4)

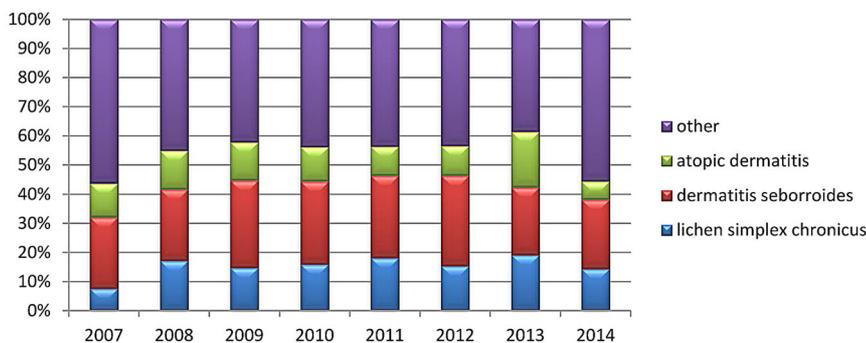
Fig. 4. Distribution by months



The frequency of LSC was compared with that of several chronic skin diseases with influence on the quality of life of patients including – seborrheic dermatitis, atopic

dermatitis 18up years, lichen planus, eczema. The morbidity of LSC was mean 3.98% with a range of 2.53% for 2007 to 4.55% for 2014. (Figure 5)

Fig. 5. The distribution of LSC in group of similar skin disorders



DISCUSSION

Although the disease is common in the literature there are no comprehensive studies on its epidemiology [5]. The different authors indicate prevalence between 2% to 12% [1,5]. In the study of 1732 disabled people (aged 50 up), Williams W (2008) establishes that 33% of them suffer from skin disease, as 13% are diagnosed with LSC [6]. Liao YH, et al (2014) reported the distribution of LSC in the range of 0.1-0.5% [7]. Shukla S. et al (1984) found the distribution of LSC to 2% [8]. This study finds incidence of LSC- 4.04%. This correlates most to data pointed out in study of Khaitan et al (1999) [9]. Relatively large range in incidence of the disease could be explained by the different target groups, who were included in studies. For example Cybulski M. and co-authors (2015) reported that the disease commits 12% of patients, but they study the distribution of skin diseases among elderly patients [10] while we involved patients from different ages.

In a conducted retrospective study we established, significant though slight trend of increasing morbidity over the years ($p=0.002$). As in 2007 frequency was 2.59%, and in 2014- 4.62%. The primary visits were respectively 2.54% for 2007 and 4.55% for 2014, and checkup - 4.08% for 2007 and 5.01% for 2014. In literature we did not find such studies, which gives us reason to assume that this is the first study till now.

Many data suggest that the peak of the disease is between 35 and 50 years of age with more prevalent in female than male and the ratio being 2:1 [3]. Controversially there are data pointing out that LSC is more common in adults, with a peak above 65 years of age at the same distribution by gender. [10] The data obtained in our study showed a ratio of female / male, being 1.2: 1. The distribution by age showed two peaks of the disease: over 65 years of age 11.87% and second in the range 25-30 years - 10.77%. The results of the peak of the disease in patients over 65 years correlate with the exported data that LSC is a dermatosis of adulthood. [1, 10, 11] In the literature we met no reports of "rejuvenation of the disease." We assume that the peak in the age 25-30 years is due to the increased

physical and mental stress, which is one of the major pathogenetic mechanisms of the disease [3]. It was further investigated the addiction between age groups and gender of the patients. In younger ages most of patients were female while with the increasing of the age number of male predominated. So in age group 25-30 years the ratio female / male was 1.7: 1, and in age group 65 up years this ratio was 1: 2.3.

Results are discussed in the light of other dermatological pathologies which have similar characteristics with LSC. The distribution of LSC compared with that of several skin diseases with a chronic course and a negative influence on the quality of life of patients show increasing of LSC from 3.36% (2008) to 4.55% (2014) ($p = 0.001$).

The seasonal modulation in LSC should be expected because etiopathogenetic mechanisms of the disease [12, 13]. Link between skin hydration and cold seasons been known long ago [14]. Boulter E. et al (2013) published data on the relationship between homeostasis of skin barrier (corneal layer) and the age and season. [15]. Slominski and colleagues (2013) found seasonal variations in hormonal activity [16]. Several studies show an increased risk of depression and suicide attempts during the cold seasons and in countries with lower levels of sun [17]. All these data explain established in our study seasonal modulation in LSC. The results showed peak of the disease during the autumn- winter season, and a significant reduction in July and August. Most high percentage was recorded in January an average of 5.14%, 4.57% in February and 4.44% in December. Lowest was morbidity in July 1.92% and August 0.66%.

CONCLUSION

Lichen Simplex Chronicus (LSC) is a skin disorder characterized by itching, which seems to have a marked psychological component. The disease is quite common. However, the epidemiological futures are few investigated so far. This is the first study in our country, which aims to update the epidemiology of LSC- including social, demographic, and disease related futures.

REFERENCES:

1. James WD, Berger TG, Elston DM. *Andrew's Diseases of the Skin*. International edition. 12th Ed., Clinical Dermatology. Elsevier. May 2015. [Internet]
2. Lotti T, Buggiani G, Prignano F. Prurigo nodularis and lichen simplex chronicus. *Dermatol Ther*. 2008 Jan-Feb; 21(1):42-6. [PubMed] [CrossRef]
3. Martin-Brufau R, Corbalan- Berna J, Ramirez-Andreo A, Brufau-Redondro C, Liminana- Gras R. Personality differences between patients with lichen simplex chronicus and normal population: A study of pruritus. *Eur J Dermatol*. 2010 May-Jun; 20(3):359-563. [PubMed] [CrossRef]
4. McKoy K. Lichen Simplex Chronicus (Neurodermatitis). Merck Manual, 2012 [Internet]
5. Rajalakshmi R, Thappa DM, Jaisankar TJ, Nath AK. Lichen simplex chronicus of anogenital region: A clinico-etiological study. *Indian J Dermatol Venereol Leprol*. 2011 Jan-Feb; 77(1):28-36. [PubMed] [CrossRef]
6. Williams W, Steward A, von Muius E, Cookson W, Anderson HR. Is eczema really on the increase worldwide? *J Allergy Clin Immunol*. 2008 Apr; 121(4):947-54. [CrossRef]
7. Liao YH, Lin CC, Tsai PP, Shen WC, Sung FS, Kao CH. Increased risk of lichen simplex chronicus in people with anxiety disorders: a nationwide population-based retrospective cohort study. *Br J Dermatol*. 2014 Apr; 170(4):890-894. [PubMed]
8. Shukla S, Mukherjee S. Lichen simplex chronicus during lithium treatment. *Am J Psychiatry*. 1984 Jul; 141(7): 909-10. [PubMed]
9. Khaitan BK, Sood A, Singh MK.

Lichen simplex chronicus with a cutaneous horn. *Acta Derm Venereol.* 1999 May;79(3):243. [[PubMed](#)]

10. Cybulski M, Krajewska-Kulak E. Skin diseases among elderly inhabitants of Bialystok, Poland. *Clin Interv Aging.* 2015 Dec;10:1937–1943. [[PubMed](#)]

11. Grundmann SA, Stonder S. Evaluation of chronic pruritus in older patients. *Aging Health.* 2010 Feb;6(1):53-66. [[CrossRef](#)]

12. Schaefer H, Redelmeier TE. Skin Barrier: Principles of Percutaneous Absorption. Basel:Karger, 2006: 310-336

13. Rawlings AV, Harding CR. Moisturization and skin barrier function. *Dermatol Ther.* 2014 Feb; 17(Suppl 1):43-48. [[PubMed](#)] [[CrossRef](#)]

14. Rogers JS, Harding CR, Mayo A, Rawling AV. Stratum corneum lipids: the effect of aging and the seasons. *Arch Dermatol Res.* 1996 Nov;288(12):765-770. [[PubMed](#)]

15. Boulter E, Estrach S, Errante A, Pons C, Cailleteau L, Tissot F, et al. CD98hc(SLC3A2) regulation of skin homeostasis wanes with age. *J Exp Med.* 2013 Jan;210(1):173-190. [[PubMed](#)]

[[CrossRef](#)]

16. Slominski A, Zbytec B, Nikolakis G, Manna PR, Skobowiat C, Zmijewski M, et al. Steroidogenesis in the skin: Implication for local immune functions. *J Steroid Biochem Mol Biol.* 2013 Sept;137:107-123. [[PubMed](#)] [[CrossRef](#)]

17. Fang YX, He M, Lin JY, Ma KJ, Zhao H, Hong Z, et al. Suicidal drownings with psychiatric disorders in Shanghai: a retrospective study from 2010.1 to 2014.6. *PLoS One.* 2015 Apr 27;10(4):e0121050. [[PubMed](#)] [[CrossRef](#)]

Please cite this article as: Georgieva F. Current Epidemiology of Lichen Simplex Chronicus. *J of IMAB.* 2016 Jul-Sep;22(2):1221-1225. DOI: <http://dx.doi.org/10.5272/jimab.2016223.1221>

Received: 14/05/2016; Published online: 25/07/2016



Address for correspondence:

Filka Georgieva
74b, Tzar Assen str., 9002 Varna Bulgaria
Tel.: +359 888 513565
E-mail: filka@abv.bg,