

Prevalence of Primary Cutaneous Lymphomas: A Cross-Sectional Study Using SEER Database in the United States

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ABSTRACT

Cutaneous lymphomas (CL) are a group of rare subtypes of lymphomas that affect the skin and are a subtype of leukemia that requires timely diagnosis and treatment. The study aimed to assess the prevalence of CL in the United States population using the Surveillance, Epidemiology, and End Results (SEER) database. The results showed that the highest prevalence of CL was observed in the 65-69 age group and 75-79 age group for males and females respectively with an overall prevalence rate of .000007%. The White race had the highest prevalence rate compared to other racial groups. These findings highlight the need for further research to better understand the underlying factors contributing to the prevalence of CL in the United States population, and the importance of early diagnosis and treatment for improving outcomes.

INTRODUCTION

Cutaneous lymphomas (CL) are a rare group of cancers whose reported incidence has risen sharply over the past years. However, the epidemiology is not well established. Cutaneous lymphoma is a type of non-Hodgkin lymphoma that affects the skin [1]. It is caused by abnormal proliferation of B or T lymphocytes, which are key cells of the immune system [1]. It can present as various skin lesions and can be difficult to diagnose due to its similarity to other skin conditions [1]. Single-center studies within the U.S. have estimated the prevalence of CL to be 0.64–0.87 out of every 100,000 [2], yet there are no published studies depicting nationwide primary CL prevalence of the U.S. population and previous national estimates were outdated for over a decade [3]. We aimed to estimate the prevalence of primary CL using the Surveillance, Epidemiology, and End Results (SEER) database, an initiative launched in 1973 as part of the National Cancer Act by the National Cancer Institute and of the U.S. population [1]. SEER provides information on cancer statistics in an effort to reduce the cancer burden among the U.S. population [5].

METHODS

We performed a cross-sectional analysis of the SEER database by identifying patients with a diagnosis of primary CL. Electronic medical records of each patient with CL were then analyzed to collect data on sex, race, and age. The SEER database had 43,926,825 participants in 2018, and the data was determined by direct patient information, with estimates of those lost to follow-up [2].

RESULTS

	Estimated Prevalence Percent	Estimated Prevalence Count	Population at Prevalence Date	Known Alive	Lost	Lost Estimated Alive	Dead Prior to Prevalence Date
Male	0.00%	186.4	21711613	181	6	5.4	67
Female	0.00%	106.2	22215212	99	8	7.2	42
White	0.00%	223.8	31240899	218	7	5.8	91
Black	0.00%	30	5224726	30	0	0	14
American Indian/Alaska Native	0.00%	3	897021.5	3	0	0	1
Asian or Pacific Islander	0.00%	24.9	6564178.5	23	2	1.9	3
Unknown	~	10.9	0	6	5	4.9	0
00 years at prev date	0.00%	0	522150	0	0	0	0
01-04 years at prev date	0.00%	0	2159900.5	0	0	0	0
05-09 years at prev date	0.00%	1	2732193.5	1	0	0	0
10-14 years at prev date	0.00%	2	2786556.5	2	0	0	0
15-19 years at prev date	0.00%	0	2781405	0	0	0	0
20-24 years at prev date	0.00%	2	2954646.5	2	0	0	0
25-29 years at prev date	0.00%	6	3391241	6	0	0	0
30-34 years at prev date	0.00%	4	3191280.5	4	0	0	1
35-39 years at prev date	0.00%	11	3049214.5	11	0	0	0
40-44 years at prev date	0.00%	15	2779268.5	15	0	0	0
45-49 years at prev date	0.00%	18	2889978.5	18	0	0	1
50-54 years at prev date	0.00%	15	2837532.5	15	0	0	3
55-59 years at prev date	0.00%	36.7	2873440	34	3	2.7	2
60-64 years at prev date	0.00%	46	2591284.5	46	0	0	4
65-69 years at prev date	0.00%	43.8	2124581	42	2	1.8	11
70-74 years at prev date	0.01%	25.9	1598623.5	24	2	1.9	8
75-79 years at prev date	0.00%	30.3	1077416	29	2	1.3	17
80-84 years at prev date	0.00%	14	736037	14	0	0	12
85+ years at prev date	0.00%	11	850075.5	11	0	0	50

Table I. Prevalence of CL in the United States, stratified by age, race, and gender

~ Statistic cannot be calculated or estimated

DISCUSSION

We identified 224 patients with primary CL, representing an overall prevalence of .000007%. The prevalence was highest in the 65-69 age group and 75-79 age group for males and females respectively, increasing with age. We observed a higher male-to-female predominance of CL. Prevalence in specific racial groups included 0.0018% in White, 0.0014% in Black, 0.0014% in American Indian/Alaska Native, and 0.0012% in Asian or Pacific Islander patients.

Our analysis has limitations. The SEER database contains a higher proportion of foreign-born people due to the geographic distribution of SEER cancer registries, leading to potential genetic or infectious associations that were not accounted for through data analysis alone. The SEER database from 2018 comprises 71% White, 12% Black, 2% American-Indian, and 15% Asian-Pacific Islanders [2], whereas the population of the United States is composed of 76% White, 14% Black, and 6% Asian [3]. The demographic discrepancies between the SEER database and the U.S. population may lead to a difference between the calculated and actual prevalence rates. There are also other limitations in this data; some patients may not be accounted for due to residency status, healthcare availability, and census limitations. There might also be racial bias in diagnosing skin disorders. Often, minority groups and patients with skin of color are inaccurately diagnosed or there is a failure to identify diseases accurately [8].

CONCLUSION

Altogether, our data suggests primary CL is a rare diagnosis with higher prevalence in male, White, and elderly patients as compared to other population groups. More insight into why these populations are especially at risk is necessary. Although there was an overall lower prevalence of primary CL in minority groups based on our dataset, this could be due to racial bias when diagnosing skin disorders leading to possible missed diagnosis of primary CL in non-white patients.

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