



CODEN [USA]: IAJPBB

ISSN: 2349-7750

**INDO AMERICAN JOURNAL OF  
PHARMACEUTICAL SCIENCES**<http://doi.org/10.5281/zenodo.1341935>Available online at: <http://www.iajps.com>

Research Article

**SURVIVAL OF ADULTS WITH ACUTE LYMPHOBLASTIC  
LEUKEMIA IN GERMANY AND THE UNITED STATES**<sup>1</sup>Dr. Samina Yasmin, <sup>2</sup>Dr. Mohammad Arslan Baig, <sup>3</sup>Dr. Ehtshaam Nasir<sup>1</sup>WMO, THQ Hospital, Khushab.<sup>2</sup>MO, BHU Kuthiala Virkan, Muredkay, Sheikhpura.<sup>3</sup>MO, BHU Malhuwala, Pindi Gheb, Attock.**Abstract:**

*One of the rare diseases of the adults is in the acute lymphoblastic leukemia. In the case of the children, the control of this disease is much more simple and easier than that of the adults. In the recent techniques and methodologies, the application s of the pediatric protocols has better the conditions of eth survival of the young adults' patients.*

*Methods: To accomplish the research, the epidemiology and the end results of the database collected in the United States of America and different cancer center in Germany is considered. The patients under the age of the 15–69 years that are diagnosed with the acute leukemia are considered for the research. The period of the analysis was selected as the 5 years of the survival.*

*Conclusion: In the 5 years of the survival period, more than half of the patients in both Germany and United States of America were reported with the decreasing period of the survival with the increase of the age. The value that is concluded is  $p=0.004$ . In a comparison of both countries, the rate of the survival was higher in Germany as compared to America for men. But this case was opposite for the females.*

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*Please cite this article in press Samina Yasmin et al., Survival of Adults with Acute Lymphoblastic Leukemia in Germany and the United States., Indo Am. J. P. Sci, 2018; 05(08).*

**INTRODUCTION:**

In case of the adult, the acute lymphoblastic leukemia is not commonly found. It is a very rare case. According to the researches, it is concluded that the estimated years of the survival of the children suffering from ALL is high as compared to that of the adults (Jabo, 2017). But according to the clinical practices, it results that that survival years duration decreases with the age (Pui, 2006). The aggressive treatment in case of the adults has proved to be a better option to increase their survival duration. As it has been discussed that it is a very rare case in the adults so the population data that is found for the adult is not enough. The data that is available is mostly related to the surveillance, epidemiology and the end results (Holleczek, 2012). In the last few years in Germany, the estimation of the survival data in the population has been obtained from aggregate data due to lack of enough data at the population level (Pulte, 2008). But due to the combined effort of the German cancer research center, covers more than ten states of the countries to get more data about the ALL at the population level for sake of the further researches. In this research, there was also the consideration of the gender and the age (Pulte, 2014).

**METHODS:**

The total data that was collected from the German federal states regarding the ALL covers the total population of the 33 million people. The patients above the age of the 15 that were reported with the ALL were included in the survey. According to the international classification of disease of oncology, the terminologies that were included were cancer topography, morphology, and behavior. Under this diagnostic code, the patients that have the both the both B cells and the T cells leukemia were included in the survey (Fielding, 2008). In some cases, the patients that were reported with or without the preceding cancer were included in the survey as there was the scarcity of the data of the patients above the age of 70+. The same procedure steps were taken in the United States of America (Rabecca, 2018 ). In a comparison of the data that was collected from the Germany and United States of America according to the surveillance, epidemiology and end results were analyzed. The variables of the different criteria were kept the same for Germany and America; the results of the analysis of the data collected from the patients suffering the acute lymphoblastic leukemia are given as follow:

Registry	Population base (million)	Years Included	Cases registered	% DCO (excluded)	Cases in the analysis	Median age at diagnosis	% Microscopically confirmed
Bavaria <sup>a</sup>	8.13	2002-06	205	8.3	188	38.0	100.0
Brandenburg	2.55	1997-2006	175	11.4	155	37.0	100.0
Bremen	0.66	1998-2006	34	5.9	32	36.5	96.9
Hamburg	1.75	1997-2006	111	4.5	106	36.5	100.0
Mecklenburg-Vorpommern	1.69	1997-2006	115	12.2	101	38.0	100.0
Lower Saxony	7.98	2001-06	185	10.3	166	40.0	97.5
North Rhine-Westphalia <sup>a</sup>	2.62	1997-2004	94	7.4	87	39.0	98.8
Rhineland-Palatinate <sup>a</sup>	0.52	1998-2006	25	24.0	19	36.0	89.5
Saarland	1.04	1997-2006	67	1.5	66	42.0	98.5
Saxony	4.25	1997-2006	215	7.4	199	40.0	98.5
Schleswig-Holstein <sup>a</sup>	1.85	1999-2006	69	18.8	56	38.5	100.0
<b>Total</b>	33.04		1295	9.3	1175	39.0	99.0
<b>SEER</b>	39	1997-2006	2314	0.3	2307	37.0	99.3

DCO = death certificate only.

<sup>a</sup>Selected administrative districts only.

<sup>11</sup> German registries, 1997-2006.

**Ethics**

All data that is collected from the surveys are analyzed thoroughly before publishing for the public use. There was need of the no additional informed consent to publish the data for sake of the research.

**Statistical methods**

During the period of the survival from 2002–06 was obtained using the period analysis. The term period analysis as introduced in 1996. In the survey o the German, the number of the patients that were registered by the dead certificates was high as compared to that of United States of America. By providing the plausibility ranges of the survival

estimates, the computation of the extracted data of the dead individuals was done. All calculation was done through the SAS software.

**RESULTS:**

Among the patients that were carried on 1295 among the age groups of the 15–69. After removing the death cases the cases there were remained for the analysis were 1175. The average age for the analysis was about forty years. The average age was about the thirty-five in united states while it as about forty-three in Germany. The plausibility range was also taken into the consideration.

Age	Germany				US			Diff	P (Model)
	N	RS	SE	Plausibility range	N	RS	SE		
15-24	322	59.2	3.8	56.9-59.2	680	54.9	2.8	+4.3	0.5232
25-39	280	47.7	4.2	43.0-47.7	580	42.3	3.0	+5.4	0.4491
40-59	331	40.0	3.9	35.7-40.0	759	24.1	2.3	+15.9	0.0041
60-69	242	21.8	4.5	18.9-21.8	288	17.7	3.5	+4.1	0.2725
Overall <sup>a</sup>	1175	43.4	2.0	39.8-43.4	2307	35.5	1.4	+7.9	0.0040

N= number of cases,

RS= 5-year relative survival.

SE= standard errors.

Diff= difference in survival between Germany and the United States.

<sup>a</sup>Age-standardized.

Most interested the surveillance is observed to the males as compares to the females taken into the consideration for the survey. When the survey was conducted on the variables of the age and the gender than it was concluded that males have the higher relative survival as compare to the females about the 5 years.

The advantaged of the man for the high survival rate was most obvious in the age group of the 40–59 in

both America and German. While it has the percent units of the +5.9 and +19.0 for German and America respectively. In the case of German, the survival period was low in the age groups of the 15–39. This rate was very high in the United States of America for a female that has the percent unit of the +12.6 percent units in the age group of the 40–59

Men									
Age	Germany				US				P (Model)
	N	RS	SE	Plausibility range	N	RS	SE	Diff	
15–24	214	59.2	4.7	57.4–59.2	460	51.8	3.4	+7.4	0.2767
25–39	188	50.0	5.0	45.4–50.0	357	37.8	3.8	+12.2	0.1702
40–59	197	42.3	5.2	37.3–42.3	392	23.3	3.1	+19.0	0.0027
60–69	114	17.4	5.8	14.4–17.4	154	14.3	4.4	+3.1	0.6117
Overall <sup>a</sup>	713	43.6	2.6	40.0–43.6	1363	32.7	1.8	+10.9	0.0021

  

Women									
Age	Germany				US				P (Model)
	N	RS	SE	Plausibility range	N	RS	SE	Diff	
15–24	108	59.5	6.2	56.3–59.5	220	61.7	4.9	–2.2	0.6143
25–39	92	43.9	7.6	39.2–43.9	223	49.2	4.8	–5.3	0.6124
40–59	134	37.2	5.7	33.7–37.2	367	24.6	3.5	+12.6	0.3101
60–69	128	25.1	6.8	22.8–25.1	134	23.0	5.6	+2.1	0.3854
Overall <sup>a</sup>	462	42.4	3.3	39.0–42.1	944	40.3	2.3	+2.1	0.4544

N = number of cases.

RS = 5-year relative survival.

SE = standard errors.

Diff = difference in survival between Germany and the United States.

<sup>a</sup> Age-standardized.

To know the recent and the new changes in the survival rate of the patients in suffering from the ALL was compared in each country. There was a high and the significant increase in the German that was about +11.8 percent units.

Group	2002		2006		Difference	
	RS	SE	RS	SE	Diff	P (model)
<b>Overall</b>	36.9	3.4	48.7	2.9	11.8	0.0240
<b>Male</b>	31.9	4.1	52.8	3.7	20.9	0.0016
<b>Female</b>	44.0	5.6	41.5	4.5	-2.5	0.7620

RS = 5-year relative survival.

SE = standard errors.

Diff = difference in survival between 2002 and 2006.

### DISCUSSION:

The survival period of the patients suffering from the ALL was higher in German as compare to America. The reason of the difference among the America and German is not obvious. The mode of the treatment is same for both counties (Toft, 2012). It is also affected by the gender. It is obvious by the following data

#### a) Overall survival including all patients

Age	Germany				US				P (Model)
	N	RS	SE	Plausibility range	N	RS	SE	Diff	
15-24	322	59.2	3.8	56.9-59.2	569	58.2	3.0	+1	0.9564
25-39	280	47.7	4.2	43.0-47.7	465	42.0	3.3	+4.4	0.3757
40-59	331	40.0	3.9	35.7-40.0	604	24.3	2.6	+15.7	0.0111
60-69	242	21.8	4.5	18.9-21.8	239	17.6	3.9	+4.2	0.2880
<b>Overall</b>	1175	43.4	2.0	39.8-43.4	1877	36.4	1.6	+7.0	0.0182

#### b) Men

Age	Germany				US				P (Model)
	N	RS	SE	Plausibility range	N	RS	SE	Diff	
15-24	214	59.2	4.7	57.4-59.2	393	53.5	3.6	+5.7	0.4558
25-39	188	50.0	5.0	45.4-50.0	284	38.6	4.2	+11.4	0.1768
40-59	197	42.3	5.2	37.3-42.3	310	23.4	3.5	+18.9	0.0060
60-69	114	17.4	5.8	14.4-17.4	131	16.4	4.9	+1	0.8379
<b>Overall</b>	713	43.6	2.6	40.0-43.6	1118	33.8	2.0	+9.8	0.0105

#### c) Women only

Age	Germany				US				P (Model)
	N	RS	SE	Plausibility range	N	RS	SE	Diff	
15-24	108	59.5	6.2	56.3-59.5	176	69.3	5.1	-9.8	0.1867
25-39	92	43.9	7.6	39.2-43.9	181	47.1	5.3	-3.2	0.7864
40-59	134	37.2	5.7	33.7-37.2	294	24.9	4.0	+12.3	0.4310
60-69	128	25.1	6.8	22.8-25.1	108	22.0	5.9	+3.1	0.2618
<b>Overall</b>	462	42.4	3.3	39.0-42.1	759	41.8	2.5	+0.6	0.5813

**REFERENCES:**

1. Fielding, A. (2008). Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/19074114>
2. Holleczeck, B. (2012). Retrieved from <https://bmccancer.biomedcentral.com/articles/10.1186/1471-2407-12-317>
3. Jabo, B. (2017). Retrieved from [journals.plos.org/plosone/article?id=10.1371/journal.pone.0174760](https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0174760)
4. Pui, C. (2006). Retrieved from <https://www.nejm.org/doi/full/10.1056/NEJMra052603>
5. Pulte, D. (2008). Retrieved from <https://academic.oup.com/jnci/article/100/18/1301/2606974>
6. Pulte, D. (2014). Retrieved from [journals.plos.org/plosone/article?id=10.1371/journal.pone.0085554](https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0085554)
7. Rabeeca. (2018 , April). Retrieved from [https://surveillance.cancer.gov/statistics/new\\_data.html](https://surveillance.cancer.gov/statistics/new_data.html)
8. Toft, N. (2012). Retrieved from <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1365-2141.2011.09020.x>