

Age and Sex in all Studied Groups

Case No.	Group I & II		Group III	
	Age	Sex	Age	Sex
1.	45 y	Female	29 y	Male
2.	72 y	Female	35 y	Female
3.	42 y	Female	37 y	Male
4.	65 y	Male	36 y	Male
5.	14 y	Male	35 y	Male
6.	42 y	Male	38 y	Male
7.	63 y	Male	36 y	Male
8.	51 y	Male	37 y	Male
9.	41 y	Female	36 y	Male
10.	65 y	Male	33 y	Female
11.	40 y	Male		
12.	43 y	Female		
13.	41 y	Male		
14.	40 y	Male		
15.	62 y	Male		
16.	16 y	Male		
17.	40 y	Female		
18.	16 y	Male		
19.	17 y	Female		
20.	50 y	Male		

Clinical Data in Group I

No.	B-symptoms			Lymph node enlargement	Extra nodal sites	Hepato-megaly	Splenomegaly
	Fever	Night sweat	Weight loss				
1.	(-)	(-)	(-)	Axillary (bilateral) – inguinal (bilateral) – para aortic)	B.M.	(+)	(+)
2.	(+)	(+)	(+)	Cervical - axillary (bilateral)	B.M.	(+)	(+)
3.	(+)	(+)	(+)	Cervical - axillary (bilateral)	B.M.	(+)	(+)
4.	(-)	(-)	(-)	Inguinal - iliac-femoral	B.M	(-)	(+)
5.	(+)	(+)	(+)	Cervical - axillary (bilateral)	B.M	(-)	(+)
6.	(-)	(-)	(-)	Submandibular - cervical – (bilateral) axillary (bilateral)		(+)	(+)
7.	(-)	(-)	(+)	Cervical (bilateral) - inguinal (bilateral) - axillary (bilateral)	B.M	(-)	(+)
8.	(-)	(-)	(-)	Abdominal - inguinal - iliac.	-	(+)	(+)
9.	(+)	(+)	(+)	Cervical - supraclavicular - axillary	B.M.	(-)	(-)
10.	(-)	(-)	(-)	Inguinal - iliac - femoral	B.M.	(+)	(+)
11.	(-)	(-)	(-)	axillary (bilateral) - inguinal (bilateral)	-	(++)	(++)
12.	(-)	(-)	(-)	Para aortic axillary (bilateral)	-	(+)	(-)
13.	(+)	(+)	(+)	Abdominal - pelvic – inguinal (bilateral)	B.M	(+)	(+++)
14.	(-)	(-)	(-)	Abdominal - pelvic – inguinal (bilateral)	Liver	(+)	(+)
15.	(-)	(-)	(-)	Multiple perisplenic and mesenteric	B.M	(+)	(+++)
16.	(+)	(+)	(+)	Cervical - inguinal (bilateral).	B.M. C.N.S	(+)	(+)
17.	(+)	(+)	(+)	Abdominal - pelvic – inguinal (bilateral)	B.M.	(+)	(+)
18.	(+)	(+)	(+)	Upper mediastinal – retroperitoneal – retosternal	B.M. C.N.S	(+)	(+++)
19.	(+)	(+)	(+)	Cervical - bilateral - axillary	B.M. G.I.T	(+)	(++)
20.	(+)	(+)	(+)	Supraclavicular - axillary – inguinal – (bilateral)	B.M. G.I.T	(+)	(++)

Lymph nodes biopsy of NHL patients at diagnosis.

Group No.	Lymph nodes biopsy	Classification according to WF
1.	Follicular lymphoma	Low grade lymphoma
2.	Follicular lymphoma	Low grade lymphoma
3.	Follicular lymphoma	Low grade lymphoma
4.	Chronic lymphocytic leukemia / Small lymphocytic lymphoma (CLL/SLL)	low grade lymphoma
5.	Lymphoblastic lymphoma	High grade lymphoma
6.	Diffuse large cell lymphoma	Intermediate grade lymphoma
7.	Follicular lymphoma	Low grade lymphoma
8.	Follicular lymphoma	Low grade lymphoma
9.	Diffuse large cell lymphoma	Intermediate grade lymphoma
10.	Chronic lymphocytic leukemia / Small lymphocytic lymphoma (CLL/SLL)	Low grade lymphoma
11.	Diffuse large cell lymphoma	Intermediate grade lymphoma
12.	Follicular lymphoma	Low grade lymphoma
13.	Follicular lymphoma	Low grade lymphoma
14.	Follicular lymphoma	Low grade lymphoma
15.	Chronic lymphocytic leukemia / Small lymphocytic lymphoma (CLL/SLL)	Low grade lymphoma
16.	Diss Lymphoblastic lymphoma	High grade lymphoma
17.	Diffuse large cell lymphoma	Intermediate grade lymphoma
18.	Diss Lymphoblastic lymphoma	High grade lymphoma
19.	Lymphoblastic lymphoma	High grade lymphoma
20.	Diffuse large cell lymphoma	Intermediate grade lymphoma





Bone marrow trephine biopsies in NHL patients at diagnosis (Group I)

No.	BM cellularity	B.M cellularity			Abnormal cells	Stromal cells				Fibrosis	Trabeculae
		Erythropoiesis	Granulopoiesis	Megakaryocytes		Reticular cells	Macrophages	Fibroblasts	Fat cells		
1.	Normocellular	Normal	Normal	Normal	Very little focal lymphocytic infiltration.	Normal	Normal	Normal	Normal	Absent	Normal
2.	Normocellular	Normal	Normal	Normal	Paratrabeular infiltration by malignant small lymphoid cells with frequently cleaved center and scanty cytoplasm.	Normal	Normal	Normal	Normal	Absent	Normal
3.	Normocellular	Normal	Normal	Normal	Paratrabeular infiltration by malignant small lymphocytic nodule	Moderately ↑	Moderately ↑	Slightly ↑	Slightly ↑	Absent	Normal
4.	Hypercellular	Normal	Reduced	Reduced	Focal infiltration composed of small mature lymphocytes	Moderately ↑	Moderately ↑	Moderately ↑	Normal	Absent	Normal
5.	Hypercellular	Normal	Normal	Normal	Diffuse Infiltration by sheets of malignant small lymphoid cells	Moderately ↑	Moderately ↑	Slightly ↑	Slightly ↓	Absent	Normal
6.	Normocellular	Normal	Normal	Normal	Absent	Normal	Normal	Normal	Normal	Absent	Normal
7.	Normocellular	Reduced	Reduced	Normal	Paratrabeular infiltration by small dense lymphocytic nodule formed of closely packed pure small lymphocytes	Moderately ↑	Moderately ↑	Slightly ↑	Slightly ↓	Absent	Normal
8.	Normocellular	Normal	Normal	Normal	Absent	Normal	Normal	Normal	Normal	Absent	Normal
9.	Normocellular	Normal	Normal	Normal	Focal infiltration by large lymphoid cells.	Normal	Normal	Normal	Normal	Absent	Normal

Continue

10.	Hypercellular	Hematopoietic tissue is seriously encroached upon by neoplastic tissue			Section is infiltrated by 85-90% small lymphocytes and about 10% larger lymphocytes, the infiltration is mainly diffuse with few big nodule.	Moderately ↑	Moderately ↑	Slightly ↑	Normal	Absent	Normal
11.	Normocellular	Normal	Normal	Normal	Absent	Normal	Normal	Normal	Normal	Absent	Normal
12.	Normocellular	Normal	Normal	Normal	Absent	Normal	Normal	Normal	Normal	Absent	Normal
13.	Normocellular	Normal	Normal	Normal	Infiltration by three moderate size paratrabecular follicular nodules composed of small size lymphocytes monomorphic and frequently show irregular nuclei.	Normal	Normal	Normal	Normal	Absent	Normal
14.	Normocellular	Normal	Normal	Normal	Absent	Normal	Normal	Normal	Normal	Absent	Normal
15.	Hypercellular	Normal	Reduced	Slightly reduced	Diffuse infiltration by small to medium size lymphocytes of neoplastic origin	Markedly ↑	Markedly ↑	Moderately ↑	Normal	Absent	Normal
16.	Hypercellular	Hyperplasic	Normal	Normal	Diffuse infiltration by immature lymphoid cells	Markedly ↑	Markedly ↑	Slightly ↓	Slightly ↓	Absent	Normal
17.	Hypercellular	Normal	Normal	Normal	Diffuse infiltration by large lymphoid cells	Moderately ↑	Moderately ↑	Slightly ↑	Normal	Absent	Normal
18.	Hypercellular	Reduced	Reduced	Reduced	Diffuse infiltration by small size blast cells	Markedly ↑	Moderately ↑	Moderately ↑	Slightly ↓	Moderate ↑	Normal
19.	Hypercellular	Reduced	Reduced	Reduced	Diffuse infiltration by small size blast cells	Markedly ↑	Markedly ↑	Markedly ↑	Slightly ↓	Moderate ↑	Normal
20.	Hypercellular	Reduced	Reduced	Reduced	Diffuse infiltration by large lymphoid cells.	Markedly ↑	Markedly ↑	Moderately ↑	Normal	Absent	Normal

Immunophenotyping For NHL Patients at Diagnosis by Flow Cytometry

	B-cell Markers					T-Cell Markers						Cytoplasmic μ	κ	λ	Diagnosis
	CD10	CD19	CD20	CD22	CD23	CD1	CD3	CD4	CD5	CD7	CD8				
1	+	+	+	+	-	-	-	-	-	-	-	-	-	+	B-cell follicular lymphoma
2	+	+	+	+	-	-	-	-	-	-	-	-	-	+	B-cell follicular lymphoma
3	+	+	+	+	-	-	-	-	-	-	-	-	+	-	B-cell follicular lymphoma
4	-	+	+	+	+	-	-	-	+	-	-	-	+	-	B-cell small lymphocytic lymphoma
5	-	-	-	-	-	-	+surface	-	+	+	+	-	-	-	Late T-cell lymphoblastic lymphoma
6	-	+	+	+	-	-	-	-	+	-	-	-	+	-	diffuse large B-cell lymphoma
7	-	+	+	+	-	-	-	-	-	-	-	-	-	+	B-cell follicular lymphoma
8	-	+	+	+	-	-	-	-	-	-	-	-	-	+	B-cell follicular lymphoma
9	-	+	+	+	-	-	-	-	-	-	-	-	+	-	diffuse large B-cell lymphoma
10	-	+	+	+	+	-	-	-	+	-	-	-	-	+	B-cell small lymphocytic lymphoma
11	-	+	+	+	-	-	-	-	-	-	-	-	+	-	diffuse large B-cell lymphoma
12	+	+	+	+	-	-	-	-	-	-	-	-	-	+	B-cell follicular lymphoma
13	+	+	+	+	-	-	-	-	-	-	-	-	+	-	B-cell follicular lymphoma
14	-	+	+	+	-	-	-	-	-	-	-	-	+	-	B-cell follicular lymphoma
15	-	+	+	+	+	-	-	-	+	-	-	-	-	+	B-cell small lymphocytic lymphoma
16	-	-	-	-	-	-	+surface	-	+	+	+	-	-	-	Late T-cell lymphoblastic lymphoma
17	+	+	+	-	-	-	-	-	-	-	-	-	+	-	Diffuse large cell lymphoma
18	-	-	-	-	-	+	+ cytoplasmic	-	+	+	+	-	-	-	Common T-cell lymphoblastic lymphoma
19	-	-	-	-	-	-	+ cytoplasmic	-	-	-	-	-	-	-	Early T-cell lymphoblastic lymphoma
20	+	+	+	-	-	-	-	-	-	-	-	-	-	+	Diffuse large cell lymphoma

Cytochemistry in Group I

Case No.	SBB	Acid phosphatase
1	Negative	Negative
2	Negative	Negative
3	Negative	Negative
4	Negative	Negative
5	Negative	Positive
6	Negative	Negative
7	Negative	Negative
8	Negative	Negative
9	Negative	Negative
10	Negative	Negative
11	Negative	Positive
12	Negative	Negative
13	Negative	Negative
14	Negative	Negative
15	Negative	Negative
16	Negative	Positive
17	Negative	Negative
18	Negative	Positive
19	Negative	Positive
20	Negative	Negative

C.S.F cytology in group I

Case No.	Group I	Group II
1	Negative	Negative
2	Negative	Negative
3	Negative	Negative
4	Negative	Negative
5	Negative	Negative
6	Negative	Negative
7	Negative	Negative
8	Negative	Negative
9	Negative	Negative
10	Negative	Negative
11	Negative	Negative
12	Negative	Negative
13	Negative	Negative
14	Negative	Negative
15	Negative	Negative
16	Positive	Negative
17	Negative	Negative
18	Positive	Negative
19	Negative	Negative
20	Negative	Negative

Bone marrow trephine biopsies in NHL patients in remission (Group II)

No.	BM cellularity	BM cellularity			Abnormal cells	Stromal cells				Fibrosis	Trabeculae
		Erythropoiesis	Granulopoiesis	Megakaryocytes		reticular cells	Macrophages	Fibroblast	Fat cells		
1.	Hypocellular	Normal	Normal	Normal	Absent	Normal	Normal	Normal	Normal	Absent	Normal
2.	Hypocellular	Normal	Normal	Normal	Absent	Normal	Normal	Normal	Normal	Absent	Normal
3.	Normocellular	Normal	Normal	Normal	Absent	Normal	Normal	Normal	Normal	Absent	Normal
4.	Normocellular	Normal	Normal	Normal	Absent	Normal	Normal	Normal	Normal	Absent	Normal
5.	Normocellular	Normal	Normal	Normal	Absent	Normal	Normal	Normal	Normal	Absent	Normal
6.	Normocellular	Normal	Normal	Normal	Absent	Normal	Normal	Normal	Normal	Absent	Normal
7.	Normocellular	Normal	Normal	Normal	Absent	Normal	Normal	Normal	Normal	Absent	Normal
8.	Normocellular	Normal	Normal	Normal	Absent	Normal	Normal	Normal	Normal	Absent	Normal
9.	Normocellular	Normal	Normal	Normal	Absent	Normal	Normal	Normal	Normal	Absent	Normal
10.	Normocellular	Normal	Normal	Normal	Absent	Normal	Normal	Normal	Normal	Absent	Normal
11.	Normocellular	Normal	Normal	Normal	Absent	Normal	Normal	Normal	Normal	Absent	Normal
12.	Normocellular	Normal	Normal	Normal	Absent	Normal	Normal	Normal	Normal	Absent	Normal
13.	Normocellular	Normal	Normal	Normal	Absent	Normal	Normal	Normal	Normal	Absent	Normal
14.	Normocellular	Normal	Normal	Normal	Absent	Normal	Normal	Normal	Normal	Absent	Normal
15.	Normocellular	Normal	Normal	Normal	Absent	Normal	Normal	Normal	Normal	Absent	Normal
16.	Normocellular	Normal	Normal	Normal	Absent	Slightly↑	Slightly↑	Normal	Normal	Absent	Normal
17.	Normocellular	Normal	Normal	Normal	Absent	Normal	Normal	Normal	Normal	Absent	Normal
18.	Normocellular	Normal	Reduced	Reduced	Absent	Slightly↑	Slightly↑	Minimally	Normal	Absent	Normal
19.	Normocellular	Normal	Normal	Normal	Absent	Slightly↑	Slightly↑	Minimally	Normal	Absent	Normal
20.	Normocellular	Normal	Normal	Reduced	Absent	Slightly↑	Slightly↑	Minimally	Normal	Absent	Normal

Blood picture in Group III

	Hb (gm/dL)	RBCs U/L	HCV %	MCV fl	MCH Pg	MCHC g%	W.B.Cs U/L	Platelets U/L	Differential leukocytic count										
									N.B	Blast	Pro	Myelo	Meta	Staff	Seg	Eos	Baso	Mon	Lymph
1	14.9	54.000.000	45	82.1	33.8	33.8	5.500	279.000	0	0	0	0	0	4	79	2	0	0	15
2	13.6	4.900.000	41.3	84.3	27.8	32.9	5.300	210.000	0	0	0	0	2	4	62	4	0	2	28
3	14.6	5.450.000	44	80.6	27.5	34.2	7.800	322.000	0	0	0	0	0	2	63	2	0	3	30
4	13.9	4.720.000	42.8	88.8	20.2	32.6	5.800	280.000	0	0	0	0	0	0	50	3	1	8	38
5	14.0	4.800.000	42.1	86.1	29.2	33.2	8.400	230.000	0	0	0	0	0	1	62	2	0	2	33
6	15.8	4.850.000	41.8	86	28.6	33.1	5.800	265.000	0	0	0	0	0	2	72	6	0	6	14
7	14.8	5.320.000	44	82.8	28.1	33.8	4.800	221.000	0	0	0	0	0	6	60	6	0	4	24
8	14.5	4.850.000	43	88.7	29.9	33.8	10.500	256.000	0	0	0	0	0	1	71	0	0	4	24
9	14.2	4.900.000	43	88	29	33.1	6.200	380.000	0	0	0	0	0	2	76	1	0	5	16
10	13.1	4.500.000	39	86.7	29.1	33.6	4.600	208.000	0	0	0	0	0	2	65	2	0	1	30
Range	13.6-14.9	4.58-5.45	39-44.5	80.6-88.7	27.5-29.5	32.6-34.2	4.6-10.5x10 ³	208-380x10 ³						0-6	50-76	0-6	0-1	0-8	14-38
Mean	14.14	49.69x10 ⁶	42.46	85.7	28.64	33.41	6.45x10 ³	263 x 10 ³						2.4	66.3	2.8	0.1	3.5	24.9
SD ±	0.57	0.26 x 10 ⁶	1.33	2.07	0.51	0.5	2.02 x 10 ³	68.28 x 10 ³						1.4	5.47	1.83	0.32	2.06	6.1

BM picture in Group III (control group)

	NB	Blasts	Pro	Myelo	Meta	Staff	Seg	Eos	Baso	Mono	Lymph	atypical lymph		Plasma cells	Meg & Platelets	M/E
												prolymph	other			
1	20	1	3	11	12	13	16	1	0	0	21	0	0	2	normal	normal
2	19	1	2	10	16	15	15	3	0	1	18	0	0	0	normal	normal
3	25	1	3	10	11	12	12	4	0	1	19	0	0	2	normal	normal
4	23	1	3	12	10	9	16	4	0	1	20	0	0	1	normal	normal
5	21	1	4	9	14	8	18	2	0.5	0.5	20	0	0	2	normal	normal
6	20	1	4	14	15	12	12	3	0	0	18	0	0	1	normal	normal
7	22	0.5	4	10	13	12	11	5	0	0.5	20	0	0	2	normal	normal
8	20	1	3	12	14	8	16	3	0	0	22	0	0	1	normal	normal
9	23	1	4	10	13	14	9	3	0	1	21	0	0	1	normal	normal
10	20	1	4	10	15	12	12	4	0	0	19	0	0	2	normal	normal
Range	19-25	0.5-1.5	2-4	9-14	10-16	8-15	9-18	1-5	0-1	0-1	18-22			0-2		
Mean	21.3	0.95	3.4	10.8	13.3	11.5	13.7	3.2	0.1	0.5	19.8			1.4		
SD_±	1.89	0.16	0.7	1.48	1.89	2.42	2.87	1.14	0.32	0.47	1.32			0.7		

Studied parameters of NHL patients at diagnosis (Group I)

Case No.	TNF- α	IL3	IL6	SCD44	L-selectin	Fibronectin	LDH	β 2 microglobulin	ESR	
									1 th Hour	2 nd Hour
1.	98	95	85	520	20	110	460	3.5	35	65
2.	70	80	35	332	12	70	590	2.8	30	56
3.	80	76	40	304	14	65	450	2.5	60	115
4.	65	70	23	250	22	85	430	2.6	50	110
5.	85	80	62	465	31	62	480	2.5	60	118
6.	75	70	73	252	18	115	750	3.2	40	70
7.	105	80	34	510	15	100	450	3.1	40	85
8.	90	86	36	380	21	90	560	2.5	35	60
9.	48	75	50	486	19	62	460	2.7	40	85
10.	85	95	42	380	30	85	520	3.8	65	120
11.	36	40	22	204	6	120	360	1.7	40	76
12.	40	98	68	480	7	80	380	1.6	18	35
13.	45	35	38	310	7.5	65	480	3.6	45	86
14.	88	85	24	440	20	70	512	3.5	55	102
15.	115	48	26	360	18	105	486	2.4	48	95
16.	285	210	75	720	45	60	920	3.8	90	170
17.	180	160	60	530	16	70	735	3.8	60	110
18.	280	90	80	600	28	62	730	4	80	140
19.	315	186	65	580	35	55	750	3	70	125
20.	510	180	72	650	40	52	850	3	80	150

Studied parameters of NHL patients at diagnosis (Group II)

Case No.	TNF- α	IL3	IL6	SCD44	L-selectin	Fibronectin	LDH	β 2 microglobulin	ESR	
									1 th Hour	2 nd Hour
1.	50	46	20	208	7	160	235	2	16	30
2.	31	40	15	180	3	110	285	1.6	10	18
3.	38	45	12	160	3	125	260	1.6	20	35
4.	20	40	10	135	4	170	210	1.7	15	26
5.	36	35	32	260	5	130	260	1.4	18	35
6.	38	30	28	130	8	190	360	2.1	8	18
7.	48	40	20	230	6	160	206	1.6	12	21
8.	45	42	16	192	4	170	240	1.5	10	21
9.	21	40	18	210	6	110	280	1.6	9	17
10.	26	42	15	132	10	180	285	2.6	12	25
11.	20	21	12	125	3.5	185	205	0.8	9	16
12.	21	45	21	265	4	120	250	1.8	10	18
13.	20	12	16	156	3.1	135	230	1.7	14	26
14.	38	30	10	270	6.8	130	256	1.6	21	40
15.	40	15	12	150	5	180	270	1.2	13	28
16.	85	80	35	335	26	115	450	1.8	15	28
17.	50	65	27	215	4	110	275	1.7	15	31
18.	80	35	32	292	6	90	365	2.1	16	30
19.	15	80	25	235	10	85	360	1.6	14	25
20.	130	60	26	360	12	75	380	1.8	18	32

Studied parameters of NHL patients in remission (Group III)

Case No.	TNF- α	IL3	IL6	SCD44	L-selectin	Fibronectin	LDH	β 2 microglobulin	ESR	
									1 th Hour	2 nd Hour
1.	50	50	17	280	5.5	290	235	1.2	7	13
2.	41	30	18	240	3	100	310	0.8	8	15
3.	42	25	8	204	2.8	110	350	1	9	18
4.	18	10	10	132	3	170	240	2.1	6	13
5.	28	30	28	160	3.5	200	380	2	5	11
6.	35	32	16	280	2	160	260	0.8	7	15
7.	21	28	21	235	6	150	270	1.8	8	18
8.	37	26	19	120	8	130	250	1.3	9	17
9.	30	35	25	130	4	210	245	2	6	12
10.	20	18	24	165	4	120	240	1.8	5	12