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A SCORE AT DIAGNOSIS FOR PREDICTING LENGTH OF REMISSION IN CHILDHOOD ACUTE LYMPHOBLASTIC LEUKAEMIA

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Summary.—Thirty-two variables at diagnosis of acute lymphoblastic leukaemia (ALL) were studied in an unselected population-based series of 209 children. Twelve

TABLE I.—*Variables examined for possible effect on the duration of first remission*

(*individual logrank tests; n = 209 unless otherwise stated*)

Variable	Level	No. of patients	Median remission duration (months)	*P*	Reference
WBC ($\times 10^9$/l)	< 5	71	43	≪0·0001*	
	5–20	67	37		
	20–50	31	15		
	50+	40	8		
FAB classification	L1	153	37	≪0·0001*	Hann *et al.*, 1979*a*
	L2	50	10		
	L3	6	1		
Severe bleeding	Absent	193	36	0·0001*	
	Present	16	8		
% PAS+ lymphoblasts with coarse granules and blocks (n = 208)	0–4	90	10	0·0002*	Hann *et al.*, 1979*a*
	5–9	20	36		
	10–49	57	53		
	50+	41	37		
Uric acid (mM)	< 0·4	123	38	0·0003*	
	0·4–0·6	56	15		
	0·6+	30	6		
Time to complete remission (wks)†	< 4	112	37	0·002*	
	4–5	28	22		
	5–6	14	15		
	6+ or never	56	9		
Surface markers (n = 78)	Null	64	44	0·002*	Kumar *et al.*, 1979
	T or B	14	6		
Liver size (cm)	< 2	90	39	0·004*	
	3–4	66	28		
	5+	53	15		
Spleen size (cm)	< 2	126	36	0·005*	
	3–4	44	18		
	5+	39	13		
Blast size (n = 203) (μm)	< 10	43	38	0·005*	Hann *et al.*, 1979*a*
	10–11	96	33		
	12+	64	13		
Ig levels (n = 196)	High	31	30	0·008*	Hann *et al.*, 1980
	Normal	155	30		
	Low	10	5		
Age (yrs)	< 3	79	36	0·014*	
	4–6	63	37		
	7+	67	12		
Renal size percentile (n = 87)	< 49	14	38	0·036*	Hann *et al.*, 1981
	50–69	33	38		
	70–84	19	9		
	85+	21	22		
CSF blasts (n = 79)	Absent	70	34	0·07	
Social class (n = 201)	I	30	16	0·1	
	II	31	35		
	III	81	34		

Variable	Level	No. of patients	Median remission duration (months)	P	Reference
Marrow reticulin (n = 83)	Normal	28	41	0·2	Hann *et al.*, 1978
	Increased	55	14		
% Cells in S phase (n = 44)	< 5	18	34	0·3	Scarffe *et al.*, 1980
	6+	26	15		
Lymph-node size (n = 205) (cm)	< 1	39	36	0·3	
	3+	47	15		
Weight percentile (n = 208)	3	22	31	0·3	
	10	23	20		
	25	62	18		
	50	56	39		
	75	24	25		
	90	17	60+		
	97	4	42		
Racial group	Caucasian	194	33	0·3	
	Asian	9	18		
	Other	6	10		
Platelets ($\times 10^9$/l)	< 25	106	25	0·4	
	25–50	48	31		
	50–100	35	42		
	100+	20	22		
% Marrow blasts	< 60	14	43	0·4	
	60–80	28	44		
	80+	167	23		
% PAS^+ lymphoblasts with fine granules and blocks (n = 202)	< 10	134	22	0·5	Hann *et al.*, 1979*a*
	10–19	32	38		
	20+	36	29		
Height percentile (n = 208)	3	15	39	0·5	
	10	24	35		
	25	46	31		
	50	59	19		
	75	33	32		
	90	21	22		
	97	10	23		
% Blasts vacuolated	< 10	108	28	0·5	Hann *et al.*, 1979*a*
	10–19	28	15		
	20–49	35	33		
	50–74	18	60+		
	75+	16	36		
Bone involvement (n = 163)	None	23	26	0·2	Hann *et al.*, 1979*b*
	Minimal	33	38		

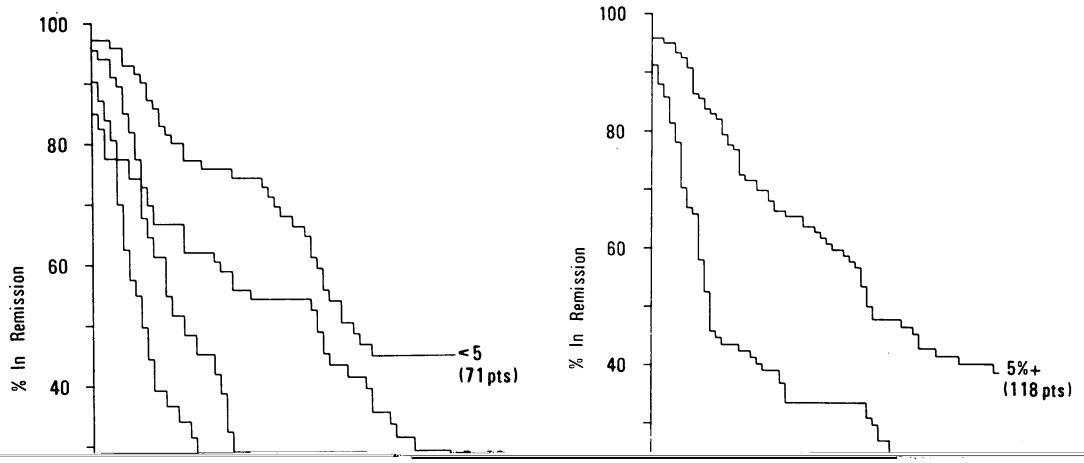

FIG. 3.—Effect of % PAS+ lymphoblasts with

acute myeloid leukaemia with ALL, despite the known differences between

corresponds to B-cell leukaemia, but there has been no consistent relationship be-

investigated an unselected population-based group of children with ALL who received full conventional treatment, in-

subtypes (Tsukimoto *et al.*, 1976). We found the L2 subtype had larger blasts than L1 and a higher percentage of cells

predictive power of the score should still be very high.

Risk score in clinical trial design

There are 2 applications of our risk

interests of simplicity.

Risk score in clinical trial analysis

Adjustment of a treatment comparison (or any other) to remove the simultaneous

Each regression coefficient β in the others (1977) Membrane phenotyping: Diagnosis.