

Long-term reduction in the incidence of aplastic anemia and immune thrombocytopenia during the COVID-19 pandemic

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Supplementary materials

Table S1. Number of diagnosed cases for each disease.

Disease category	Disease	2019	2020
		(N=43,397)	(N=42,430)
Acute leukemias	Acute myeloid leukemia with myelodysplasia-related changes	872	898
	Acute myeloid leukemia with maturation	658	570
	Acute promyelocytic leukemia with <i>PML-RARA</i>	380	366
	B-lymphoblastic leukemia/lymphoma, not otherwise specified	334	306
	Acute myeloid leukemia without maturation	317	302
	B-lymphoblastic leukemia/lymphoma with <i>BCR-ABL1</i>	260	301
	Acute myelomonocytic leukemia	221	187
	Acute monoblastic and monocytic leukemia	192	229
	Acute myeloid leukemia with minimal differentiation	146	139
	Therapy-related myeloid neoplasms	133	196
	Acute myeloid leukemia with <i>RUNX1-RUNX1T1</i>	128	125
	T-lymphoblastic leukemia/lymphoma	124	152
	Acute myeloid leukemia with <i>CBFB-MYH11</i>	85	89
	Pure erythroid leukemia	54	37
	Acute myeloid leukemia with mutated <i>NPM1</i>	37	48
	Mixed-phenotype acute leukemia, B/myeloid	31	22
	Acute megakaryoblastic leukemia	30	29
	Acute myeloid leukemia with <i>KMT2A-MLLT3</i>	23	22
	Mixed-phenotype acute leukemia with <i>BCR-ABL1</i>	17	19
	Acute leukemias of ambiguous lineage, not otherwise specified	13	10
	Myeloid sarcoma	12	12
	Mixed-phenotype acute leukemia, T/myeloid	11	21
	Early T-cell precursor lymphoblastic leukemia	11	8
	Acute myeloid leukemia with <i>GATA2, MECOM</i>	11	4
	B-lymphoblastic leukemia/lymphoma with <i>TCF3-PBX1</i>	10	16

	B-lymphoblastic leukemia/lymphoma with <i>KMT2A</i> -rearranged	9	14
	Acute panmyelosis with myelofibrosis	8	8
	Mixed-phenotype acute leukemia, not otherwise specified, rare types	8	6
	B-lymphoblastic leukemia/lymphoma with hyperdiploidy	6	5
	Acute myeloid leukemia with mutated <i>RUNX1</i>	6	5
	Acute myeloid leukemia with biallelic mutation of <i>CEBPA</i>	4	10
	Acute myeloid leukemia with <i>DEK-NUP214</i>	4	8
	Acute myeloid leukemia with <i>BCR-ABL1</i>	4	4
	Acute basophilic leukemia	2	0
	B-lymphoblastic leukemia/lymphoma, <i>BCR-ABL1</i> -like	1	9
	B-lymphoblastic leukemia/lymphoma with <i>ETV6-RUNX1</i>	1	4
	B-lymphoblastic leukemia/lymphoma with hypodiploidy	1	1
	B-lymphoblastic leukemia/lymphoma with <i>IGH/IL3</i>	0	1
	Acute myeloid leukemia with <i>RBM15-MKL1</i>	0	1
	Mixed-phenotype acute leukemia with <i>KMT2A</i> -rearranged	0	0
	B-lymphoblastic leukemia/lymphoma with recurrent genetic abnormalities	0	0
	Myeloid leukemia associated with Down syndrome	0	0
	Acute myeloid leukemia, not otherwise specified	0	0
Aggressive lymphomas	Diffuse large B-cell lymphoma (DLBCL), not otherwise specified	7,233	7,265
	Adult T-cell leukemia/lymphoma	617	624
	Peripheral T-cell lymphoma, not otherwise specified	491	501
	Primary diffuse large B-cell lymphoma of the central nervous system	354	387
	Angioimmunoblastic T-cell lymphoma	340	336
	Mixed-cellularity classic Hodgkin lymphoma	259	210
	Nodular sclerosis classic Hodgkin lymphoma	222	202
	Intravascular large B-cell lymphoma	199	198
	Classic Hodgkin lymphoma	197	251
	EBV-positive diffuse large B-cell lymphoma, not otherwise specified	155	182
	Extranodal NK/T-cell lymphoma, nasal type	152	162
	Burkitt lymphoma	117	150

	Anaplastic large cell lymphoma, ALK-negative	108	97
	Primary mediastinal large B-cell lymphoma	96	120
	High-grade B-cell lymphoma, not otherwise specified	83	129
	High-grade B-cell lymphoma with <i>MYC</i> and <i>BCL2</i> and/or <i>BCL6</i> rearrangements	75	92
	T-cell/histiocyte-rich large B-cell lymphoma	48	46
	Plasmablastic lymphoma	42	29
	Anaplastic large cell lymphoma, ALK-positive	41	47
	Lymphocyte-rich classic Hodgkin lymphoma	40	36
	B-cell lymphoma, unclassifiable, with features intermediate between DLBCL and classic Hodgkin lymphoma	39	14
	Primary effusion lymphoma	37	43
	Monomorphic epitheliotropic intestinal T-cell lymphoma	23	31
	Primary cutaneous diffuse large B-cell lymphoma, leg type	23	27
	Enteropathy-associated T-cell lymphoma	15	10
	Follicular T-cell lymphoma	14	13
	Nodal peripheral T-cell lymphoma with TFH phenotype	12	14
	NK-lymphoblastic leukemia/lymphoma	12	6
	Lymphocyte depleted classic Hodgkin lymphoma	11	10
	Hepatosplenic T-cell lymphoma	9	8
	Aggressive NK-cell leukemia	8	11
	Lymphomatoid granulomatosis	5	13
	Diffuse large B-cell lymphoma associated with chronic inflammation	4	16
	ALK-positive large B-cell lymphoma	4	3
	Burkitt-like lymphoma with 11q aberration	2	5
	Large B-cell lymphoma with <i>IRF4</i> rearrangement	1	2
	HHV8-positive diffuse large B-cell lymphoma, not otherwise specified	1	1
	EBV-positive DLBCL of the elderly	0	0
	B-cell lymphoma, unclassifiable, with features intermediate between DLBCL and Burkitt lymphoma	0	0
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Indolent lymphomas	Follicular lymphoma	2,790	2,667
	MALT lymphoma	1,271	1,241
	Chronic lymphocytic leukemia	495	497
	Mantle cell lymphoma	351	338

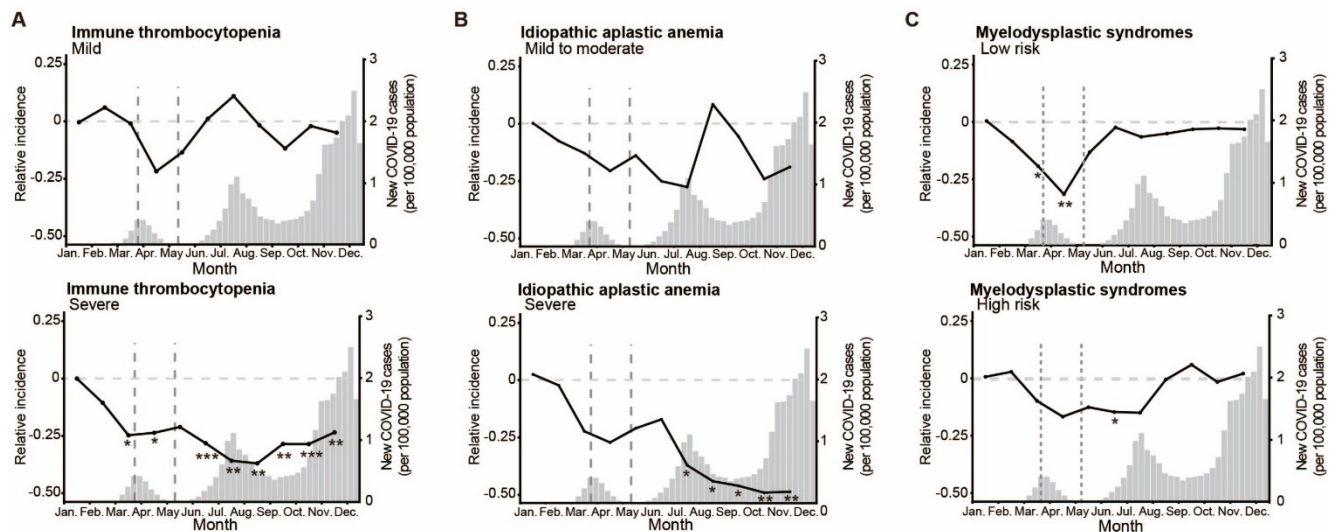
	Waldenström macroglobulinemia	248	265
	Nodal marginal zone lymphoma	176	162
	Lymphoplasmacytic lymphoma	143	173
	Splenic marginal zone lymphoma	89	87
	T-cell large granular lymphocytic leukemia	57	46
	Duodenal-type follicular lymphoma	49	59
	Mycosis fungoides	42	46
	Nodular lymphocyte predominant Hodgkin lymphoma	42	40
	Hairy cell leukemia	33	30
	Primary cutaneous anaplastic large cell lymphoma	19	31
	Chronic lymphoproliferative disorder of NK cells	14	24
	Sezary syndrome	13	8
	Pediatric nodal marginal zone lymphoma	0	0
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Plasma cell disorders	Plasma cell myeloma	3,118	3,004
	Primary amyloidosis	196	221
	Solitary plasmacytoma of bone	61	50
	Extraosseous plasmacytomas	41	36
	POEMS syndrome	27	21
	Monoclonal immunoglobulin deposition diseases	5	6
	Alpha heavy chain disease	1	0
	Gamma heavy chain disease	0	1
	Mu heavy chain disease	0	0
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Myelodysplastic syndromes	Myelodysplastic syndrome with multilineage dysplasia	1,355	1,269
	Myelodysplastic syndrome with excess blasts 2	812	822
	Myelodysplastic syndrome with excess blasts 1	773	695
	Myelodysplastic syndrome with single lineage dysplasia, refractory anemia	563	485
	Myelodysplastic syndrome with multilineage dysplasia and ring sideroblasts	228	243
	Myelodysplastic syndrome, unclassifiable	212	229
	Myelodysplastic syndrome with single lineage dysplasia, refractory thrombocytopenia	117	109
	Myelodysplastic syndrome with ring sideroblasts	78	74
	Myelodysplastic syndrome with isolated del(5q)	72	78

	Myelodysplastic syndrome with single lineage dysplasia, refractory neutropenia	52	40
	Refractory cytopenia of childhood	1	2
	Myelodysplastic syndrome with excess blasts	0	0
	Refractory anemia with ring sideroblasts	0	0
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Myeloproliferative neoplasms	Essential thrombocythemia	1,483	1,413
	Chronic myeloid leukemia, <i>BCR-ABL1</i> positive	1,207	1,191
	Polycythaemia vera	734	780
	Secondary erythrocytosis	316	360
	Primary myelofibrosis	266	253
	Relative erythrocytosis	247	284
	Myeloproliferative neoplasm, unclassifiable	138	113
	Atypical chronic myeloid leukemia, <i>BCR-ABL1</i> negative	34	26
	Chronic eosinophilic leukemia, not otherwise specified	33	24
	Chronic neutrophilic leukemia	16	30
	Juvenile myelomonocytic leukemia	1	0
	Myeloproliferative neoplasm, others	0	0
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Pre-malignant monoclonal B-cell disorders	Monoclonal gammopathy of undetermined significance	1,494	1,392
	Monoclonal B-cell lymphocytosis	13	15
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Immune thrombocytopenia	Immune thrombocytopenia	1,718	1,600
	Chronic immune thrombocytopenia	685	601
	Acute immune thrombocytopenia	303	284
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Idiopathic aplastic anemia	Idiopathic aplastic anemia	780	693
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Others	Other malignant diseases (26 diseases)	136	154
	Other pre-malignant diseases (11 diseases)	475	470
	Other non-malignant diseases (91 diseases)	4,521	4,173

Figure S1. Relative incidences for cases with idiopathic aplastic anemia and immune thrombocytopenia by disease severity.

Two-month moving average of the decrease rates for cases with immune thrombocytopenia (ITP) (A), idiopathic aplastic anemia (AA) (B) and myelodysplastic syndromes (MDS) (C) by disease severity in 2020 compared to 2019. ITP was diagnosed and classified as severe if cases had platelets $< 30 \times 10^9/L$ and otherwise as mild to moderate¹. Idiopathic AA was diagnosed and classified as severe if cases met two or more of the following criteria: reticulocytes $< 40 \times 10^9/L$, neutrophils $< 0.5 \times 10^9/L$, and platelets $< 20 \times 10^9/L$, based on the Camitta criteria² with slight modification, and otherwise as mild to moderate. MDS with excess blasts was classified as high-risk and all other subclassifications as low-risk.

Student's two-tailed t test. * $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$.



References

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