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THE FIRST EVALUATION OF THE ANTIGENIC PROFILE OF CLL PATIENTS IN ARMENIA AND THE CONSIDERATION OF CD200 AS A REQUIRED MARKER

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INTRODUCTION

The diagnosis of CLL relies on specific criteria, including the number of neoplastic B-cells present in peripheral blood and their morphology and immunophenotype. Despite numerous studies, accurate diagnosis remains challenging in some cases, particularly in atypical CLL where immunophenotypes overlap with those of mature B-cell neoplasms. The WHO, IWCLL, and NCCN require mandatory markers such as CD19, CD5, CD23, CD20, Igκ, and Ig for CLL diagnosis, with additional recommended markers used for borderline cases, including CD43, CD79b, CD81, CD200, CD10, and ROR1.

AIM

The primary objective of this research was to assess the diagnostic efficacy of the additional recommended markers suggested by WHO for CLL. We specifically focused on CD200 expression and its significance as a diagnostic tool, which is gaining importance as a diagnostic standard.

METHOD

We examined the data of Armenian CLL patients who received their primary diagnosis from May 2019 to May 2022. The study included 101 CLL patients, of which 49 were males (48.5%) and 52 were females (51.5%). Multicolor flow cytometric immunophenotypic analysis was performed on cell suspensions of fresh peripheral blood samples collected in EDTA. We analyzed the expression of all essential markers as per WHO, IWCLL, and NCCN, including CD5, CD19, CD23, CD20, Igκ, and Igχ, along with recommended markers like CD43, CD79b, CD81, CD200, and CD10. Specifically focused on CD200 expression and its significance as a diagnostic tool.

RESULTS

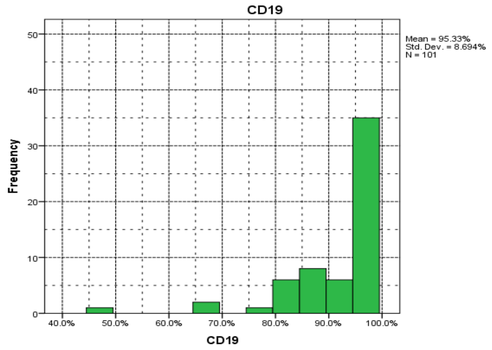


Figure 1. CD19 expression level

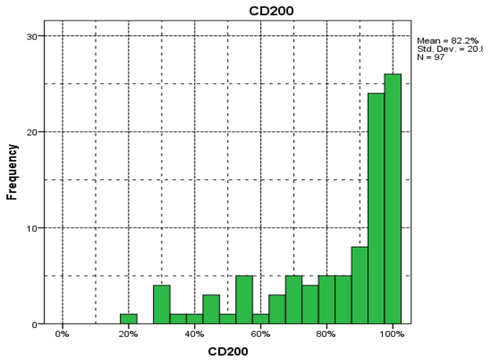


Figure 2. CD200 expression level

	Positive		Negative	
	Frequency	Percent (%)	Frequency	Percent
CD19	101	100%		
CD5	101	100%		
CD20	92	91.09%	7	6.93%
CD22	7	6.93%	94	93.07%
CD23	96	95.05%	5	4.95%
CD38	4	3.96%	95	94.06%
CD43	84	83.17%	14	13.86%
CD79B	33	32.67%	67	66.34%
CD81	37	36.63%	64	63.37%
CD200	97	96.04%	4	3.96%
Kappa	31	30.69%	69	68.32%
Lambda	33	32.67%	68	67.33%

CONCLUSIONS

CD200 was expressed in most patients (96.1%), with a mean positivity of 82.2%. While the positivity of CD200 in CLL cells varied from 20% to 99%, only 10 cases had an expression level below 50%, and 75% of patients had more than 72% CD200 positive B-cells.

Our study concludes that CD200 is a handy marker and is highly informative in diagnostic immunophenotyping in CLL and should be considered a required marker in atypical CLL patients, for whom the Matutes scoring system is ineffective.

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