

ORIGINAL ARTICLE

A Predictive Test in The Screening of HIV Positive Cases; Interferon Gamma Inducible Protein 10 (IP-10)

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SUMMARY

Background: HIV (human immunodeficiency virus), causing acquired immunodeficiency syndrome (AIDS), is one of the most important health problems in the world. Certain cytokines produced during the cytokine storm in an acute infection can be biomarker candidates. The strong association of IFN- γ inducible protein 10 (IP-10) with low CD4 cell counts suggests that it can be an acute phase biomarker.

Methods: In this study, IP-10 was monitored at routine controls during pre-treatment and/or in subsequent phases of treatment, and its correlation with CD4 cell count and viral load was assessed. Venous blood samples, taken from 30 patients (at 0 - 3 - 6 months), and 20 healthy volunteers, were sent to the Laboratory for flow cytometry, nucleic acid tests (NAT) and ELISA tests.

Results: The mean IP-10 concentration of patients was 344 pg/mL, and these values for the untreated, treated and control groups were 422 pg/mL and 210 pg/mL and 68 pg/mL respectively. A statistically significant difference was found between the IP-10 values of the patient and control groups ($p = 0.006$). There was a significant, positive and moderate relation between IP-10 and viral load values ($r = 0.59$, $p < 0.001$), while there was a significant, negative and moderate relation between IP-10 and CD4 cell count ($r = -0.51$, $p < 0.001$).

Conclusions: IP-10 levels in early HIV-1 patients, which are shown to be closely related to CD4 cell levels and viral replication, may be an alternative or support marker compared to the more expensive viral load tests in monitoring viremia changes and response to antiretroviral treatment.

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Supplementary Tables and Figures

Supplement 1. Characteristics and data of the 30 patients investigated in this study.

No	Age (years)	* Sampling month	* CD4 cell count (mm ³)	* Viral load (copies/mL)	* IP-10 (pg/mL)
1	40	0/3/6	501/508/596	55,000/38,400/** ND	146/97.3/31
2	34	0/3/6	413/468/502	146,000/69,800/*** BDL	202/138/45.3
3	23	0/3/6	287/294/421	127,000/66/ BDL	352/495/297
4	24	0/3/6	785/1,014/1114	3,660/ BDL/ BDL	117/116/46.7
5	34	0/3/6	176/359/561	179,000/44/ BDL	161/85.4/60.1
6	25	0/3/6	458/519/707	1,570,000/217/ ND	2,000/1420/808
7	33	0/3/6	223/477/363	31,500/ BDL/ BDL	396/274/60.1
8	32	0/3/6	329/474/517	306,000/11,200/1,180	374/211/149
9	47	0/3/6	115/162/185	162,000/2,320/278	307/178/165
10	20	0/3/6	768/975/637	13,400/ ND/ ND	205/58.7/56
11 ****	48	0/3/6	17/73/50	72,200/1,220/322,000	361/129/343
12	23	0/3/6	50/167/184	9,600/75/ BDL	754/397/331
13	34	0/3/6	380/527/381	160,000/58/43	501/141/572
14	23	0/3/6	457/509/608	85,000/ ND/ ND	240/44/31
15 ****	40	0/3/6	12/108/12	14,000/2,590,000/1,000,000	92/361/410
16	40	0/3/6	106/131/164	1,590/78/43	219/138/112
17	22	0/3/6	387/528/857	379,000/ ND/ ND	750/101/31
18	35	0/3/6	188/414/394	57/90/BDL	257/162/234
19	23	0/3/6	828/761/1,010	BDL/.ND/ ND	31/35.9/58.7
20	31	0/3/6	399/704/578	BDL/ ND/ BDL	62/48/53.4
21	50	0/3/6	370/992/1,060	BDL/ BDL/ BDL	769/68.1/34.6
22	65	0/3/6	233/341/610	146,000/2,470/123	527/223/194
23	36	0/3/6	362/185/302	ND/ ND/ ND	31/119/750
24	35	0/3/6	569/650/518	209/51/ BDL	80.1/148/126
25	40	0/3/6	745/438/593	BDL/ BDL/ BDL	46.7/136/39.9
26	29	0/3/6	197/393/487	84,800/66,400/ BDL	223/119/101
27	62	0/3/6	153/238/200	BDL/ BDL/ BDL	77.4/58.7/149
28	49	0/3/6	950/934/697	BDL/ BDL/ BDL	208/114/119.5
29	55	0/3/6	115/162/185	BDL/ BDL/ BDL	276/222.7/216
30	33	0/3/6	485/667/856	BDL/ BDL/ BDL	142/46.4/34

* Sampling times from patients were specified as 0/3/6 months.

** ND - Not Detected.

*** BDL - Below detection limit.

**** - Patient 11 was nonadherent; patient 15 temporarily stopped taking the drug.