

**Table 4: Quantitative Competitive Polymerase reaction (QC-PCR) Comparison of frequency between pre and post therapy**

	Frequency of high viral load (Percentage)	Frequency of low viral load (Percentage)	Significance	
Pre therapy	10 (55.55%)	8 (44.45%)	Pre therapy Vs post therapy	0.036 *
Post therapy	3 (16.66%)*	15 (83.34%)	Pre therapy Vs control	0.011*
Control	0 (0%)	9 (100%)	Post therapy Vs control	0.202

Mann-Whitney Test: \* Pre therapy Vs post therapy ( $p < 0.05$ )

\* Pre therapy Vs control ( $p < 0.05$ )

The significance of QC-PCR assay results were highlighted and summarized in Table 4.

## Discussion

The Epstein-Barr virus is a herpes virus which establishes a life-long persistent infection in over 90% of human adult population worldwide based upon its association with a variety of lymphoid and epithelial malignancy, EBV considered as group 1 carcinogen by the international agency for researches on cancer and it has a precise roles in development of virus associated human malignancies <sup>(12)</sup>. Patients viral load are included within the range of healthy controls.

In this study highly advanced molecular method was used to provide rapid and highly productive amplification of specific DNA sequence for achievement of an accurate and highly reproducible EBNA-1 QC-PCR which is important in diagnostic laboratories for diagnosis and monitoring of diseases <sup>(13)</sup>. The EBV load in patient blood samples ranged from 0–  $1.936 \times 10^9$  while the EBV viral load in healthy controls were ranged from 7–  $1.9 \times 10^3$  (Figure 7).

Table 2 shows that 66.7 % of HL patients and 44.5% of patients with NHL having EBV load above cut off value at time of diagnosis and before chemotherapy after starting of chemotherapy the EBV DNA load decreased below the cutoff value by 66.7% in HL

patients and by 100 % in NHL patients indicating good response to chemotherapy. These results come in agreement with Gandi et al, 2004 who stated that half of those patients having HL will respond to therapy and can be cured with conventional modality treatment also others found that after treatment no EBV genome were found in plasma of 6 HD patients which are stable with complete remission of the disease <sup>(15)</sup>.

In group I HL patients with high EBV load at time of diagnosis with a range of 10715 ( $1.071 \times 10^4$ ) to 1936421960 ( $1.936 \times 10^9$ ) copies/ml blood, 50% of them showing response to chemotherapy with decline of viral load below cutoff value or to undetectable values, these results are in agreement with Gandi et al., 2006 who concluded that plasma EBV DNA have excellent sensitivity and could be used as a biomarker for EBV associated HL when he reported the presence of detectable viral load in 50% of EBV positive HL patients prior to therapy and after therapy EBV was undetectable unless in one patient under study.

In group I NHL the four patients who have a high EBV load above cut off value 5861 ( $5.86 \times 10^3$ ) -50118 ( $5.01 \times 10^4$ ) copies/ml blood