Clinical Significance of EBV DNA Viral Load in Acute EBV Infection In Children

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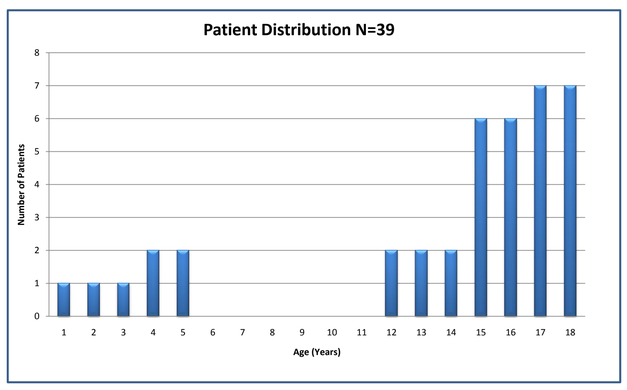
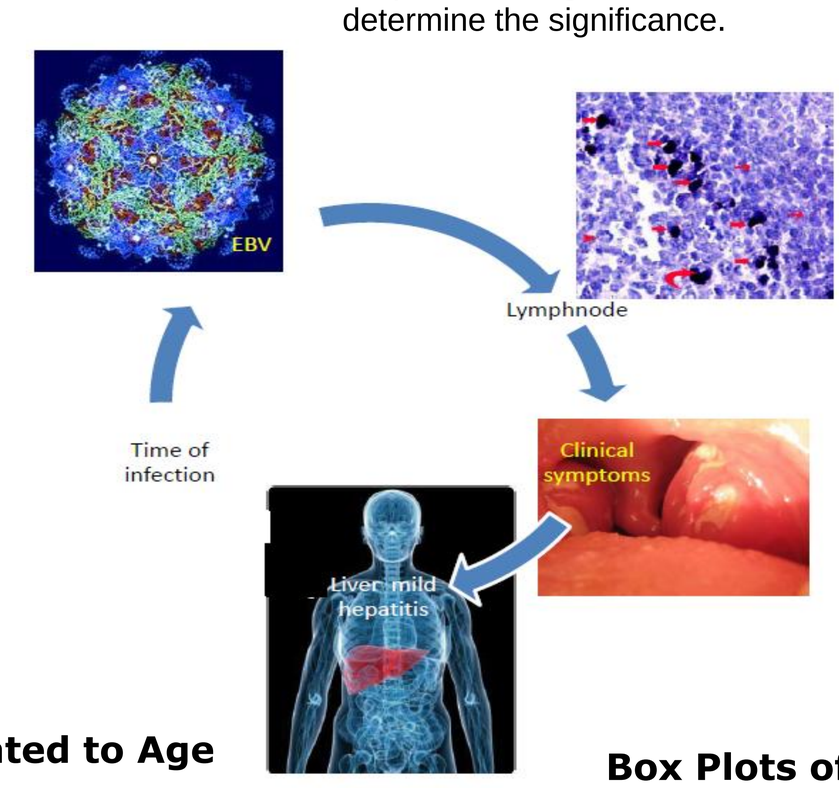
Introduction

The availability of appropriate, fast and reliable biochemical parameters might help clinicians to estimate the severity of disease objectively, concerning acute EBV infection. Furthermore it might help clinicians in diagnosing the acute EBV infection.
Our study investigated the coherence between EBV DNA copies/ml in plasma and the severity of disease concerning acute EBV infection. This coherence was investigated through the correlation between EBV DNA load in plasma and the biochemical parameters ASAT, CRP, lymphocytes and LDH, and partly by grouping the biochemical parameters by EBV DNA level. The investigated study group ranged from 1-18 years (table below).



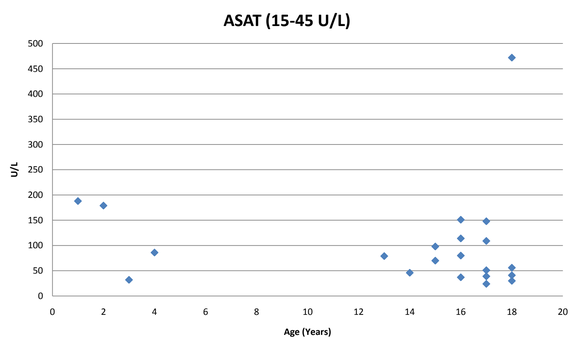
Methods

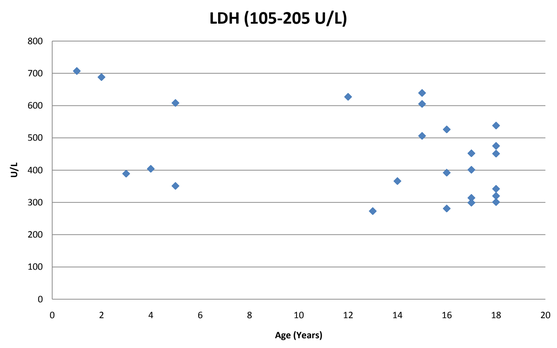
The serological status (EBV VCA IgM, VCA IgG and EBNA IgG) was till 31st December 2009 measured by ELISA using the Biotest assay. From 1st January 2010 samples were tested using the Vidas assay. The EBV DNA load in the samples were determined in 200 µL EDTA plasma using kit from Qiagen (RealArt™EBV LC PCR Kit, Artus) and lightcycler PCR.The limit of detection was 300 EBV DNA copies/mL plasma. The level of CRP, ASAT, lymphocytes and LDH were analyzed by routine methods at Department of Clinical biochemistry. This **retrospective study** included **39 patients** with no comorbidities. Data was extracted from the LIMS from 1/7-2009 till 1/4 -2012. A single sample was drawn at admission. All patients having an acute EBV infection were included. The inclusion criterias were detectable EBV DNA level in plasma, ±VCA IgM positivity, ±VCA IgG positivity and EBNA IgG negativity. Patient data was distributed to normal laboratory values and analyzed, while potential associations between parameters were analyzed by simple linear regression and both t-test and Mann-Whitney test were used to determine the significance.



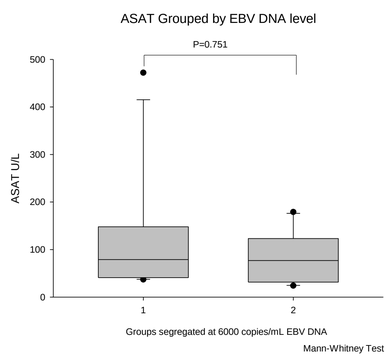
Results

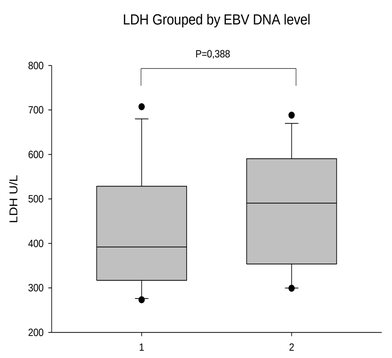
Distribution of Patient Data Correlated to Age

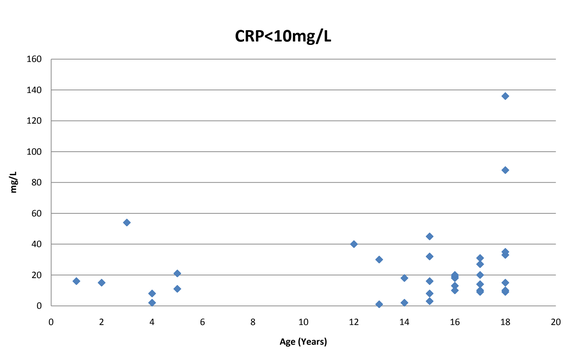


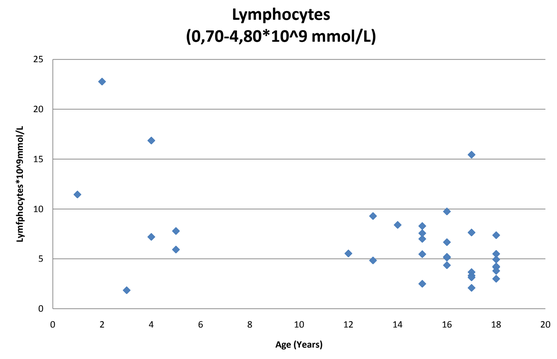


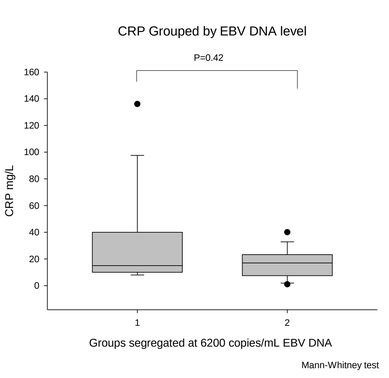
Box Plots of Data Grouped by EBV DNA Level

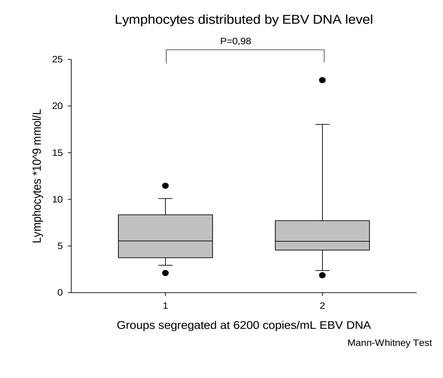












Conclusion

In this study we found elevated parameters in most patients, which could assist in the clinic to diagnose acute EBV infection. However no correlation was found between EBV DNA load in plasma and ASAT, lymphocytes, LDH or CRP levels. No significant p-values were found. Further investigation is needed, including prospective studies and patients with consecutive samples.