Background and aims SLE is a multisystem autoimmune disease, having known HLA-DRB1*15 and DRB1*03 risk alleles and an association with EBV in the Caucasian population. We compared the association of HLA-DRB1 and EBV in North Indian cohort of adult and paediatric SLE.

Methods We analysed 109 adult SLE (aSLE) and 52 paediatric SLE (pSLE) with 278 age and sex matched control adult (CA) and paediatric (CP) for HLA-DRB1 genotyping by PCR-SSP. EBV-IgM and IgG to VCAgp125, VCAp19, EBNA-1, p22 and EA-D by line blot assay and EBV load by real-time PCR.

Results The frequencies of DRB1*15 and DRB1*03 were higher in SLE (OR=2.57 and 1.67 respectively) compared to controls. aSLE had higher frequencies of DRB1*03 (OR=2.33) and DRB1*04 (OR=7.51) compared to pSLE whereas, pSLE had higher frequency of DRB1*15 (OR=2.42) compared to aSLE. pSLE had more 3+ to 4+ positivity of EBV-IgG to VCAgp125 compared to aSLE (p=0.0008). EBV-IgM to VCAp19, EBNA-1 and EA-D (25%,12.5% and 6.25% respectively) were present only in pSLE. pSLE had more 3+ to 4+ positivity of EBV-IgG to VCAgp125 compared to aSLE (p=0.045). IgG to p22 and EA-D were associated with DRB1*15 (OR=3.92 and 5.28 respectively) and IgG to VCAgp125, VCAp19, EBNA-1, p22 and EA-D were associated with DRB1*15 in pSLE (OR=4.0,3.4,4.6,4.8 and 4.8 respectively).

Conclusions DRB1*15 and DRB1*03 are risk alleles in North Indian SLE. Both show strong associations with immune response to EBV proteins. pSLE has stronger association with DRB1*15, which is associated with early infection, stronger immune response to EBV proteins and higher EB viral load, which may explain more severity of pSLE.