loss and improved survival. Despite this, the immune mechanisms and timing of immunomodulatory effects remain ill-defined. Recent data has reported changes in a subset of NK cells in HBeAg negative disease which may predict response. This study evaluated the effects of PEG-IFNα on the innate immune response in eAg positive patients, a cohort known to respond favourably to interferon.

Methods Paired PBMC samples were compared pre and during PEG-IFNα therapy from 16 patients. Changes in innate immune responses were evaluated at two on-treatment intervals, 12 and 24 weeks. The number, phenotype and function of NK cell populations were assessed. The expression of TNF related apoptosis inducing ligand (TRAIL) and the production of interferon γ (IFNγ) on the NK cell population was determined with flow cytometry. Changes in the innate response were correlated with HBsAg quantification (Abbott ARCHITECT).

Results PEG-IFNα increased the $CD56^{bright}$ NK cell population (CD56/CD16) by threefold (mean fold change; MFC 3.02, p=0.01) in all patients. This was associated with an overall decline in HBsAg 0.42 log and HBV DNA 2.5 log. Further increase in $CD56^{bright}$ NK cells was noted from 12 to 24 weeks (MFC 2.3 vs 3.7). Consistent with this, HBsAg decline was also more marked at 24 weeks (mean decline log 0.13 vs 0.70). In the absence of HBsAg decline, there was no upregulation of $CD56^{bright}$ NK cells.

Upregulation of TRAIL expression was noted on this $CD56^{bright}$ NK subset by more than twofold (MFC 2.44, p=0.009), this effect was more dramatic at 12 weeks (MFC 2.12 vs 2.72). A twofold increase in IFNγ producing $CD56^{bright}$ NK cells was observed, (MFC 2.39, p=0.03); again this effect was more marked at 12 weeks (MFC 2.61 vs 2.01).

Conclusion These data highlight the effects of PEG-IFNα on the innate immune response in eAg positive CHB. An upregulation of $CD56^{bright}$ NK cells, their expression of TRAIL and IFNγ production presage a decline in HBsAg and HBV DNA. These changes observed at 12 weeks, are not reflected in concurrent HBsAg decline, but may predict sustained immune control in the longer term with a more marked HBsAg decline at 24 weeks.

Competing interests None.

Keywords e antigen positive (HBeAg positive), interferon, NK cells, surface antigen quantification (qHBsAg).

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PEGYLATED INTERFERON A MODULATES INNATE IMMUNITY IN EAG POSITIVE CHRONIC HEPATITIS B AND DETERMINES CHANGES IN HBSAG QUANTIFICATION

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Introduction Pegylated-Interferon a (PEG-IFNα) therapy provides sustained immune control and is associated with HBsAg