Effect of vitamin D supplementation on pegylated interferon/ribavirin therapy for chronic hepatitis C genotype 1b: A randomized controlled trial

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Background: The current most effective treatment for patients chronically infected with hepatitis C virus (HCV) genotype 1 consists of pegylated interferon (PEG-IFN), ribavirin (RBV) and a protease inhibitor. Patients who experience severe side effects are treated with PEG-IFN/RBV. Chronic HCV-infected patients tend to have vitamin D deficiency, suggesting that vitamin D supplementation may enhance the effects of PEG-IFN/RBV. We therefore assessed the effects of vitamin D supplementation on viral response to PEG-IFN/RBV. Methods: Eighty-four patients were randomized, 42 to oral vitamin D (1000 IU/day) and 42 to matching placebo, from week 8 to the end of

PEG-IFN/RBV therapy. The primary endpoint was negative HCV at week 24 (viral responder [VR]).

Results: VR rate at week 24 was significantly higher in the vitamin D than in the placebo group (78.6% vs 54.8% p=0.037). Adverse events were similar in both groups. When patients were sub-divided by IL28B SNP rs8099917 genotype, those with the TT genotype group showed significantly higher VR rate at week 24 with than without vitamin D supplementation (86.2% vs. 63.3% vs. p=0.044). Although patients with the genotype TG/GG, who were relatively resistant to PEG-IFN treatment, had similar VR rates at week 24 with and without vitamin D, their decline in viral load from week 8 to week 24 was significantly greater with than without vitamin D. Multivariate analysis showed that rs8099917 genotype and vitamin D supplementation contributed significantly to VR at week 24.

Conclusion: Vitamin D supplementation can enhance the effects of PEG-IFN/RBV in HCV genotype 1-infected patients.