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## Improvement in anti-hepatitis C virus resistance with ribavirin and pegylated-interferon-alpha 2b using an “Induction” approach using natural interferon-beta in difficult-to-treat chronic hepatitis C

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Chronic hepatitis C (CHC) is a serious global medical problem necessitating more effective treatment. Cyclic and periodic IFN-treatment (CPIT) consisting of induction-treatment with natural IFN-beta followed by maintenance-treatment with natural IFN-alpha could prevent viral-breakthrough and achieve rapid-virologic-response (RVR) and early-VR (EVR) in CHC. The efficacy and immune-response of RBV+PEGIFN-alpha 2b using induction-approach with CPIT (novel combination treatment: NCT) in 7 CHC patients with genotype-1b, high viral load and ISDR with wild and intermediate type were evaluated. A biometric multiplex serum cytokine assay was utilized to characterize the immunomodulatory effect. RVR and EVR were 7/7 and 7/7. Viral titers dropped below detectable levels in 5 patients with sustained-VR (SVR) before the end of CPIT (early-virologic-responder: EAVR), and 2 patients without SVR after the end of CPIT (late-virologic-responder: LAVR). At baseline, in EAVR compared with the controls, IL-6 and IL-15, CXCL-8 and CXCL-10 levels were significantly higher ( $p<0.05$ ); IL-10 and IL-13 levels were significantly lower ( $p<0.05$ ); and the IL-12 level was lower. In LAVR; GM-CSF, CXCL-8 and CXCL-10 and CCL-4 levels were significantly higher ( $p<0.05$ ); and IL-10 and IL-12 were lower than the controls. In EAVR but not LAVR, the IL-12 and IL-15 increased, and the CXCL-8 and CCL-4 decreased significantly ( $p<0.05$ ). In conclusion, NCT induced viral clearance leading to improvement in the innate-immune-response resulting in SVR in CHC with genotype-1b and high viral load. It is feasible to treat difficult-to-treat-CHC with NCT. An additional study is in progress to evaluate viral efficacy in a controlled manner.

### Biography

He graduated from Nara Prefectural College of Medicine and obtained Ph.D., Osaka University in 1982. He is the director of Division of Gastroenterology, Osaka Kaisei Hospital, Japan. Research Fellow, Division of Gastroenterology and Hepatology, Osaka University Medical School, 1976.9-1982.6. In recent years he focused on improvement of treatment for difficult-to-treat chronic hepatitis C and got some novel and innovative success in treatment for it. He has published a paper entitled “Multiple Cytokines Profiling of the Therapeutic Responses to RBV and PegIFN-alpha 2b using an “Induction” Approach with n-IFN-beta in Chronic Hepatitis C” in J of Interferon Cytokine Research 29:353-368, 2009.