In the United States, Canada, the European Union, and Japan, telaprevir (TVR), a hepatitis C virus (HCV) nonstructural 3/4A (NS3/4A) protease inhibitor, has been approved for the treatment of chronic hepatitis C genotype 1 since 2011 and represents a new class of small molecules that are direct-acting antiviral agents (DAA) for reflecting HCV replication. TVR-based triple therapy, combined with pegylated-interferon α (PEG-IFNα) and ribavirin (RBV), has resulted in an improved SVR rate, when compared to PEG-IFNα monotherapy and PEG-IFNα plus RBV dual therapy.

We have reported our experience of treating a cohort of chronic hepatitis C patients using combination with peginterferon-alpha-2b (PEG-IFNα2b) plus ribavirin (RBV) in which over 1,200 patients were treated (Ogawa E, et al. J Gastroenterol Hepatol 2008; 23: 1994-104; Ogawa E. et al. J Hepatol 2013; 58: 495-501). Significantly lower virological response and higher discontinuation of treatment due to adverse effects were found in elderly patients than the younger.

Earlier studies of TVR-based regimens for chronic hepatitis C patients have not shown any correlation between age and the virological outcome. Furthermore, there are no data regarding factors predictive of SVR by older and younger patients. For this reason, we conducted a prospective, multicenter study to investigate the efficacy and safety of TVR-based triple therapy for older patients with chronic hepatitis C.

### Methods

1. Since December 2011, this prospective multicenter (n=22) study has been done in 403 genotype 1 patients with chronic hepatitis C (treatment naive 33.4%, prior relapers 43.4%, prior non-responders 18.9% and unknown response 4.2%), who receive 12-week triple therapy of TVR (2250 mg/day), PEG-IFNα2b (60-150 µg/week) and RBV (600-1000 mg/day) followed by 12-week dual therapy of PEG-IFNα2b and RBV.

2. The analysis is restricted to 120 patients (age range of 25-73 years) reaching 24-week follow-up after therapy.

3. Patients were categorized according to age: group A, 64 patients aged≤60 and group B, 56 patients aged≥60.

4. Sustained virological response (SVR), by COBAS TaqMan HCV test, at 24 weeks after therapy was done based on intention-treatment analysis.

5. Informed consent was obtained from all patients before enrolment. The study was registered as a clinical trial on the University Hospital Medical Information Network (ID 00009711).

### Results

1. The rate of undetectable HCV RNA at week 4 (rapid virological response: RVR) was 75% for group A (40 patients aged≤65) and 77.5% for group B (80 patients aged<65) (P=0.76) (Table 2).

2. No significant difference in SVR rate was found between groups A (72.5%) and B (83.7%) (P=0.14) (Table 4).

3. The SVR rate of interleukin 28B (IL28B) rs8099917 TT (88.9% and 91.1% for groups A and B, respectively) was significantly higher than IL28B T/G (46.2% and 45.9% respectively) (P=0.091). Table 4 shows the contribution of IL28B SNP to SVR.

4. Multivariate analysis showed IL28B TT (Odds ratio 8.5, P=0.01) and undetectable HCV RNA at week 4 (OR 13.2, P=0.01) as independent factors associated with achieving an SVR (Table 3).

5. Adverse effects resulted in treatment discontinuation in 12.5% for group A and 10% for group B. No episode of death and hepatic decompensation was observed.

### Conclusion

TVR-based triple therapy can be used successfully and safely to treat elderly patients with genotype 1 chronic hepatitis C. IL28B genotyping and early virological response indicate effectiveness in these difficult-to-treat elderly patients.

### Disclosure information

The authors do not have any conflict of interest.