Transparency declarations

None to declare.

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Teicoplanin therapy leading to a significant decrease in viral load in a patient with chronic hepatitis C

Andreas Maieron[1] and Heidrun Kerschner[2]*

[1]Gastroenterology and Hepatology, Elisabethinen Hospital, Fadingerstrasse 1, 4020 Linz, Austria; [2]Institute for Hygiene, Microbiology and Tropical Medicine, Elisabethinen Hospital, Fadingerstrasse 1, 4020 Linz, Austria

*Corresponding author. Tel: +43-732-7676-3689; Fax: +43-732-7676-3686; E-mail: heidrun.kerschner@elisabethinen.or.at

Keywords: HCV, teicoplanin, therapy, viral load, glycopeptides

Sir,

We read with interest the paper by Obeid *et al*.,[1] 'Inhibition of hepatitis C virus replication by semi-synthetic derivatives of glycopeptide antibiotics'. It provided us with a possible explanation for a clinical observation that we made.

We would like to report an elderly patient with chronic hepatitis C. The patient's alanine aminotransferase levels were consistently ~120 U/L and a Fibroscan showed liver stiffness of 43.5 kPa correlating with stage IV fibrosis in 2010. The patient had completed a total of three antiviral treatment cycles with pegylated interferon and weight-based ribavirin. The last course of therapy had been maintained for 72 weeks and was finished in April 2010. Although the patient experienced on-treatment response, relapse occurred very shortly after the end of each therapy.

In April 2010, the patient received a right hip joint replacement in another hospital, which was complicated by delayed wound healing. On 31 May 2010, the patient fell on their hip and had to have repeat surgery. During the following days a fever developed and on 4 June two blood cultures were positive for *Staphylococcus aureus*. The surgical site was presumed the focus of infection and an antimicrobial therapy with ampicillin/sulbactam was initiated. The patient was then transferred to the gastroenterology ward of our hospital on 28 June 2010. In consultation with infectious diseases specialists and orthopaedic surgeons, we decided to switch the antimicrobial therapy to long-term teicoplanin starting on 7 July. We administered 1600 mg of teicoplanin intravenously two to three times a week for a total of 10 weeks (trough level 9.2–19.9 mg/L). Surprisingly, 12 days after the initiation of teicoplanin treatment, normal serum transaminase levels were measured for the first time in 30 years. Hepatitis C viral load measurement on 13 August showed a significant decrease in the patient's RNA load to 2.0 $\log_{10}$ IU/mL (previous measurement on 28 June: 6.9 $\log_{10}$ IU/mL). Subsequent measurements yielded RNA loads of <15 IU/mL on 27 August and 2.9 $\log_{10}$ IU/mL on 17 September, which was the last day of teicoplanin therapy (Figure 1). Transaminase levels remained normal until 1 October, but have been elevated since. Also, the patient's hepatitis C RNA levels returned to the usual baseline levels of ~6.0 $\log_{10}$ IU/mL.

There is some evidence that glycopeptides and their derivatives show antiviral effects against retroviruses and coronaviruses,[2,3] but Obeid *et al*.[1] were the first to report activity of teicoplanin derivatives against hepatitis C virus replicons in an *in vitro* model. The mechanism of action of these compounds and the exact molecular substructures responsible for inhibition of viral replication have not yet been elucidated. However, the authors speculate that the peptide scaffold common to all these substances might play a major role in their antiviral activity.

Our patient showed significant decreases in the hepatitis C viral load and transaminase levels during teicoplanin therapy. Teicoplanin has been shown to enter human cells[4] and therefore a post-entry interaction with the hepatitis C virus replication cycle, as proposed by Obeid *et al*.[1] for their compound LCTA-949, may be a possible explanation for the observed effect. Another conceivable mechanism might be interference of teicoplanin with host cell factors such as lipid metabolism and membrane organization, which are both important for hepatitis C virus replication.[5]

It has been suggested that heterologous viral infections may trigger hepatitis C virus-specific T cell responses;[6,7] however, hepatitis B virus and HIV infection were excluded in our patient. Furthermore, our patient did not show any clinical signs of influenza and there was no influenza activity in Austria at that time. In the absence of any other explanation, we speculate that teicoplanin interfered with hepatitis C virus replication and led to the observed decrease in the viral load.

Unfortunately, our patient was not available for a trial of repeat exposure to teicoplanin, because the patient is currently undergoing treatment with triple antiviral therapy. To the best of our knowledge this is the first description of a possible effect of teicoplanin on *in vivo* hepatitis C virus replication.

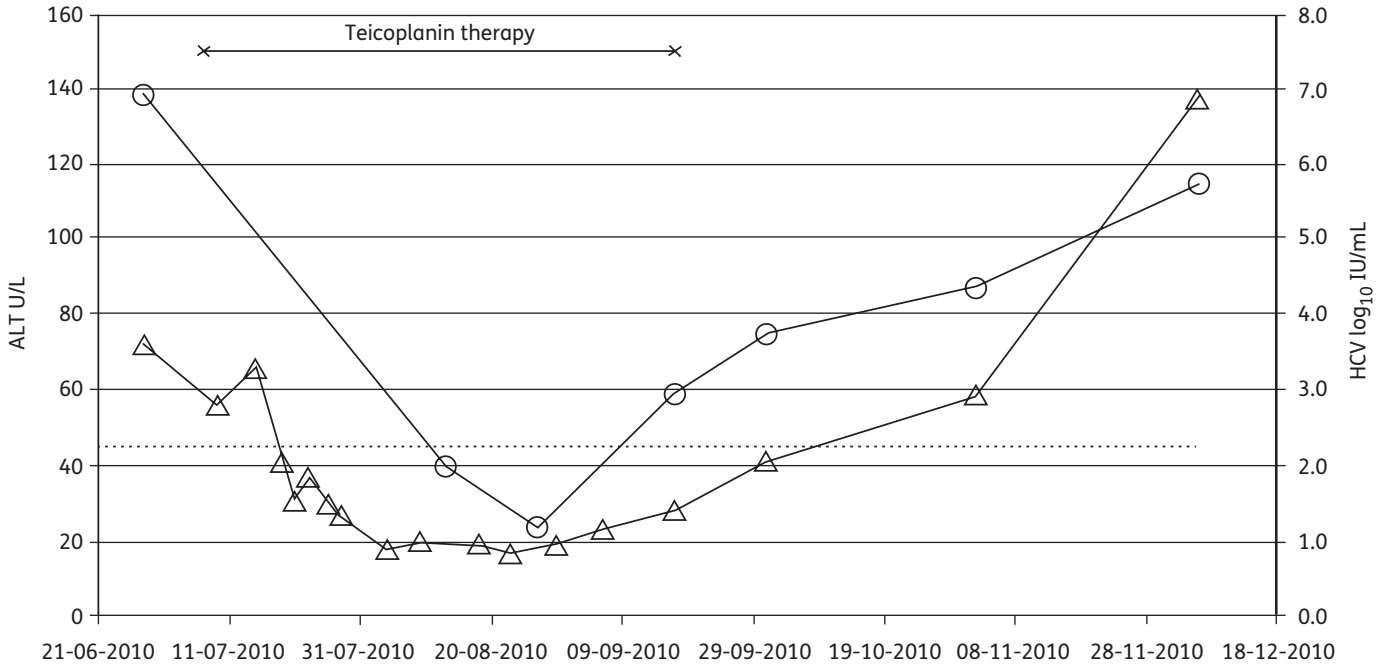

Figure 1. Hepatitis C virus (HCV) load and alanine aminotransferase (ALT) levels during and after teicoplanin therapy. Open circles, HCV load. Open triangles, ALT levels (the horizontal broken line corresponds to the upper level of the normal range).

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Transparency declarations

None to declare.

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Long-term maraviroc use as salvage therapy in HIV-2 infection

Umbelina Caixas[1,2], Joana Ferreira[1], Aline T. Marinho[2], Inês Faustino[2], Nádia M. Grilo[2], Fátima Lampreia[1], Isabel Germano[1], Emília C. Monteiro[2] and Sofia A. Pereira[2]*

[1]Centro Hospitalar de Lisboa Central (CHLC), 1150-199 Lisboa, Portugal; [2]Centro de Estudos de Doenças Crónicas (CEDOC), Faculdade de Ciências Médicas (FCM), Universidade NOVA, 1169-056 Lisboa, Portugal

*Corresponding author. Tel: +351-21-8803035; Fax: +351-21-8803083; E-mail: sofia.pereira@fcm.unl.pt

Keywords: CCR5 antagonists, HIV-2 CCR5 tropism, therapeutic drug monitoring, second-line HIV-2 therapy, persistent low CD4 cell count

Sir,

Maraviroc is a chemokine CCR5 coreceptor antagonist that is currently used in treatment-experienced R5-tropic HIV-1-infected patients. Despite the fact that very few data are available on this new antiretroviral drug in HIV-2 infection, *in vitro* maraviroc activity against R5 HIV-2 has very recently been shown.[1,2] However, the clinical usefulness of maraviroc in HIV-2 infection