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[V-1690-2004] Therapy of West Nile Virus (WNV) Meningoencephalitis with Interferon Alpha-2b

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Background: Interferon α-2b (IFN α-2b) inhibits WNV replication in vitro. The potential therapeutic benefit and safety of IFN α -2b was evaluated in patients with WNV meningoencephalitis in a randomized, unblinded, multi-center trial. Methods: Patients with clinical and epidemiologic evidence of WNV meningoencephalitis were randomized to IFN α -2b therapy for two weeks (6 million units followed by 3 million units daily), or to an untreated group during the summers of 2002-2003. Treatment was initiated prior to the results of WNV serologic studies. Patients with serologically proven WNV infection and follow-up examination after 3 weeks were included in the outcome analysis. The primary outcome was the change in neurologic function as determined by the N.I.H. Stroke Scale (NIHSS) from randomization to the end of week three. 19 patients were randomized to each group. Among treated patients, 2 were seronegative, 1 was lost to follow up, and 1 died within the first 36 hours. 4 untreated patients were seronegative, 4 were lost to follow up, and three withdrew. Thus, 15 treated and 8 untreated patients were eligible for analysis. 16 patients received IFN α -2b for at least 10 days, and were eligible for toxicity analysis. Results: 15 treated and 8 untreated patients were evaluable for efficacy. The mean change in NIHSS from week 1 to week 3 was 9.6 and 3.0 in the treated and untreated groups, respectively (p=0.008 by 2-tailed Fisher's randomization test). Treated patients received IFN α -2b for an average of 12.9 days. Treatment in 5/16 patients (31%) was stopped prior to14 days. The most common adverse events were elevation of serum transaminase and neutropenia. Grade 3 hepato toxicity occurred in 6/16 patients (37.5%), and grade 3 neutropenia in 5/16 patients (31%). These events resolved with drug cessation. Conclusion: Treatment of WNV meningoencephalitis with IFN α -2b was safe and had potential benefit. These results support further investigations of early α -IFN therapy for WNV meningoencephalitis.

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