

CASE REPORT

# Intravenous Vitamin C and Infectious Mononucleosis: A Case Report

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**Abstract** *The Epstein-Barr virus (EBV) is a herpes virus that is generally transmitted by oropharyngeal secretions and is the causative agent of infectious mononucleosis. This virus is classified among the most common of human viruses. Infectious mononucleosis is caused by an intense cytotoxic T lymphocyte response to eliminate EBV-infected B cells. The most common manifestation of infectious mononucleosis is the classic presentation of fever, oropharyngitis and bilateral lymphadenitis. Full recovery from infectious mononucleosis generally occurs in two to three weeks. Here, we report a case of infectious mononucleosis treated with high dose intravenous Vitamin C in an adult female presenting fever, pharyngitis, lymphadenopathy and atypical lymphocytosis confirmed by serologic test that fully recovered in five days after IV Vitamin C treatment.*

## Case Report

A white female, age 30, complained of generalized aching, exhaustion, anorexia and malaise. Her physical condition prior to these symptoms had been normal. Remittent fever, accompanied by the usual symptomatic complaints of body pain and inflamed lymph nodes was reported. A complete blood count revealed large vacuolated lymphocytes. A positive heterophile antibody titer of 1:225 was recorded. A diagnosis of acute infectious mononucleosis was made and intravenous Vitamin C therapy was initiated. Clinical and subjective response to three consecutive daily 50 g IV Vitamin C was excellent. Symptoms remitted in five days following beginning of therapy. The overall morbidity was reduced beyond expectation for the diagnosed condition. The therapy was well tolerated and no adverse side effects were noted. The quickness of the patient response to high dose IV Vitamin C was dramatic since full recovery from infectious mononucleosis rarely takes place in not less than two to three weeks.

## Discussion

EBV is part of the herpes virus family. Transmission occurs through close personal contact and via intimate oral contact among adults. The most common presentation in infectious mononucleosis is fever, sore throat and adenopathy. The diagnosis of EBV infection is made by appropriate clinical symptoms, laboratory findings and positive EBV IgM antibody and heterophil antibody tests (Ebell, 2004).

Treatment for infectious mononucleosis is usually supportive as it is generally self-limiting. The mainstay of treatment is supportive care, which includes adequate hydration, NSAIDs or acetoaminophen for fever and myalgias, throat lozenges or sprays, or gargling with a lidocaine solution to relieve pharyngeal pain and discomfort. Corticosteroids are recommended only in patients with significant pharyngeal edema that threatens respiration. Complications are mainly hematological, such as hemolytic anemia, thrombocytopenia.

nia, aplastic anemia, thrombocytopenic purpura, hemolytic uremic syndrome. Neurologic complications seen in 1-5% of cases include Guillain-Barre syndrome, facial paralysis, meningoencephalitis, aseptic meningitis, peripheral neuritis, cerebellitis and optic neuritis. Potentially fatal complications include splenic rupture and air way obstruction caused by lymphoid hyperplasia and mucosal edema.

EBV can create long-term issues as for example chronic fatigue associated with sustained activation of the virus. EBV may also serve as an environmental trigger for a number of systemic autoimmune diseases by creating persistent stressors within the body's immune system. These stressors create increased opportunity for the initiation of autoimmune diseases and aid in the progression of other diseases.

Improved recovery of subjects with viral infection upon supplementation with pharmacologic doses of vitamin C has been observed clinically (Harakeh, et al. 1990; Levy, 2002; Cheng et al. 2012; Schencking et al. 2012; Gonzalez et al. 2014; Gonzalez et al. 2016; Gonzalez et al. 2018). Vitamin C is also necessary for neutrophil function (Wintergerst et al. 2006). The efficacy of vitamin C in the treatment of viral infections involves multiple biochemical processes, which aid the immune response, reducing favorable conditions for viral replication. Vitamin C's reducing properties diminish the oxidant stresses induced from viral infection and work to detoxify and neutralize the reactive oxygen produced by the infection (Wintergerst et al. 2006). Vitamin C also works to stimulate the body's production of anti-viral cytokines and interferon (Gerber, 1975; Murata 1975; Bissell et al. 1980; Karpinska et al. 1982; White et al. 1986; Furuya et al. 2008; Mandl et al. 2009; Mikirova et al. 2012; Mikirova et al. 2012)

## Conclusion

Our case provides evidence that high dose (50 grams) intravenous vitamin C therapy has a positive effect by reducing illness symptoms, disease duration and viral antibody levels.

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