

The Effectiveness of Hepatitis B Vaccine in Patients Receiving Immunomodulator Therapy

Asli Haykir Solay, Ali Acar, Fatma Eser, Emin Ediz Tutuncu, Fatma Aybala Altay, Irfan Sencan

Ankara Diskapi Yildirim Beyazit Training and Research Hospital, Infectious Disease and Clinical Microbiology Department

Background: Immunomodulatory drugs, which have been widely used in recent years, predominantly impairs cellular immunity. T lymphocytes play an essential role in the generation of antibodies against hepatitis B virus (HBV). The reduced quality of the immune response in patients who are under immunotherapy, may thus have a negative effect on the efficacy of vaccination. We conducted this study to evaluate efficacy of hepatitis B vaccine in patients who use immunomodulators, including biological and non-biological agents.

Material/methods: Patients with negative serology for HBV using biological agents for various medical reasons were included in the study. A complete standard vaccination schedule in 3 doses as a 20 mL in 0-, 1-, and 6-month schedule was administered to each patient. Hepatitis B surface antibody (anti-HBs) titer was checked one month after the last dose of hepatitis B vaccine. Patients who have positive for anti-HBs (defined as anti-HBs of ≥ 10 mIU/mL) were considered to be immune to hepatitis B.

Results: Thirty patients were recruited in the study. The mean age was 44 years (range, 19-74 years), and 50% of the patients were male. Twenty-three of the patients were psoriasis, six were Inflammatory Bowel Disease (IBD) and one was Hidradenitis Suppurativa. Eight of the patients were smokers. The biological agents used were adalimumab (19), ustekinumab (6), inflixumab (4) and etanecept (1). In only 17 (56.6%) of all patients anti-HBs titers were detected above 10 mIU / ml. Possible risk factors in patients who could not been received vaccine response are shown in Table.

Conclusions: The response rate for the HBV vaccine in general population is over 90%. In our study, response rate was found as a 60%. This rate is significantly lower than the general population values. Biological Agents can have different negative effects on vaccine activity. In our study, seroconversion did not develop in all patients using Inflixumab. Three of the four patients who used Inflixumab had IBD. The use of infliximab in IBD cases may reduce the vaccine response. Diminished quantity or quality of the antibody response may reduce the protection provided by vaccination in these patients, thus high dose vaccination (40 mcg) should take consideration.

Table: Risk Factors for Patients Who Could not Been Received Vaccine Response

	Anti-HBs negative (n=13,%43)	Anti-HBs positive (n=17, %57)	Total (n=30, %100)
Average age	41	46	44
BMI >25	9	13	22
Somoker	4	4	8
Psoriasis	10	13	23
IBD	3	3	6
HS	-	1	1
Adalimumab	7	12	19
Ustekunimab	2	4	6
Inflixumab	4	-	4

BKI: Body Mass Index, IBD: Inflammatory Bowel Disease, HS: Hidradenitis Suppurativa

