SEROCONVERSION AFTER HEPATITIS B VACCINATION IN HEMODYALYSIS PATIENTS: RESULTS OF TWO DIFFERENT VACCINATION SCHEDULE

Ortalda V.,Tomei P.,Yabarek T*,Pessolano G,Lupo A.

Division Nephrology A.O.U.I. Verona; *Nephrology Ospedale di Manerbio (Bs) , **ITALY**

OBJECTIVES

HBV infection is actually a worldwide disease among chronic hemodialysis patients, as a result of a cross-reaction contamination and high HBV-DNA serum prevalence in HBsAg+ patients.
As long as all the primary prevention programs have been carried out, vaccination becomes the leading treatment in order to decrease HBV-morbidity, so frequent in this group of patients.
Clinical trials regarding uremic patients undergoing HBV vaccination, have shown, comparing to general population, lower seroconversion rates (50-74% vs 90%).
This delayed and weak response could be caused by malnutrition, anemia, uremic syndrome and immunological disorders, so that we can consider these patients as immunosuppressed.
The aim of the study was to evaluate the seroconversion among two groups of hemodialysis patients exposed to two different HBV-vaccine schedules and to investigate if there were differences between patients who had and had not an effective response.

METHODS

We observed a group of 145 patients (pts) who start haemodialysis (HD) from 2003 to 2010. The first group of 99 pts (group A),mean age 56 ± 17a,63 M and 36 F,were vaccinated for the first time with HBVAXPRO® 20 mg in 3 doses (0-1-6 months) intramuscularly (IM) during the dialysis.

The second group of 46 pts (group B) who started HD in 2010 (mean age 68 ± 10a.) 24 M and 12 F, were vaccinated with 3 doses of HBVAXPRO® (SANOFI PASTEUR SMDS) with the same timing of the group A but with a double dose (40 mg) by intradermal (ID) injection at the end of the dialysis session.

None of the patients was vaccinated before, nor treated with steroids and all patients had a good nutritional parameters according to albumin and fats serum levels.
The vaccine was a recombinant Saccaromices cerevisiae derived HBV surface antigen adsorbed on aluminum hydroxyphosphate sulfate. Levels of HBV antibodies were determined every 3 months,for at least 24 months.

RESULTS

The immune response results assessed by blood levels of Ab to Hb surface 3-6-12 months after vaccination showed in group A a good Ab response at 6 months in 39 pts (41%) with a titre between 10 and 1000 IU/L (RESPONDER)(R) and no titre (<10 IU/L) in 56 pts (59%)(NON RESPONDER) (NR).
In the group B we obtain a sufficient antibody response with values ranging from 13 to 139 IU/L at 6 months after vaccination in 20 pts (43.4%) (R1) and 26 pts (56.6%) were non responders with a titre <10 IU/L (NR1).
We didn't find any significant difference between R and NR,R1 and NR1 of the two groups regarding weight, sex, Hb, inflammatory and nutritional markers, dialysis adequacy (Kt/V), dialysis membrane (HF and LF) and T cells CD4+/CD8+ ratio.
Only younger age seems to be associated with improved seroconversion in group A and in a group B ($p<0.052$) vs elderly patients.

CONCLUSIONS

The weak response to HBV vaccination in haemodialysis patients seems to be independent from vaccine dose (20 or 40 mg), route of injection (IM vs ID), timing (during or at the end of HD session), type of dialysis and T cell subsets. (CD4+/CD8+ ratio).

A protective response to vaccine schedule in this populatio could be achieved before starting dialysis,when patients are stil in CKD 3-4 stage,using a vaccine with an hydroxide aliminium adjuvants.
The stage of CKD and the vaccine schedule seem important,both for the efficacy and the long term immune response.

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Ortalda Vittorio
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