QUESTION 31 HDx & Hep B

A 67-year-old man has recently commenced haemodialysis for renal failure as a result of chronic glomerulonephritis. He receives immunisation with three separate doses of hepatitis B vaccine according to the recommended protocol. Six weeks after the third dose, his anti-hepatitis B surface antigen antibody level is <10 mU/mL. Which one of the following is the most appropriate course of action?

A. Reimmunise using Freund’s adjuvant.
B. Repeat anti-hepatitis B testing in 3 months.
C. No further hepatitis B immunization.
D. Give hepatitis B immunoglobulin.
E. Immunise with up to 3 further doses of hepatitis B vaccine.

- General suppression of the immune system associated with uremia
- Lower antibody titer
- Inability to maintain adequate Ab titers over time

Hep B vaccine

- Reduced efficacy of vaccine
- 50-60% of ESRD pt dev Ab following HBV vaccination
- pt with CKD not requiring HDx have higher Ab response

<table>
<thead>
<tr>
<th>Arguments not for vaccination</th>
<th>Arguments for vaccination</th>
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<tbody>
<tr>
<td>1. Low rate of Hep B infection</td>
<td>Case control study:</td>
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<td>2. Incidence of Hep B infection was 0.12% among Hdx pt.</td>
<td>1. Hdx pt vaccinated against Hep B had a 70% lower risk of infection compared with non vaccinated pt.</td>
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Strategies (with supporting data)

1. Double vaccine dose
2. Administer vaccine in deltoid muscle
3. Give additional doses to pt with ESRD
4. Begin the vaccination series as soon as chronic progressive renal failure is recognized
5. Administer a single booster dose of 40microg if Ab titer falls to \( \leq 10 \)IU/L in pt who initially develop an Ab response to vaccination or after natural infection
   - No benefit to repeater boosters in those whose Ab titers remain \( \leq 10 \)IU/L

Freund’s adjuvant (on Wikipedia)

- Composed of inactivated and dried mycobacteria usually mycobacterium tuberculosis (pathogenic agent of TB)
- Effective in stimulating cell-mediated immunity and may lead to potentiation of the production of immunoglobulin
- ITS USE IN HUMANS is FORBIDDEN, due to its TOXICITY!!!!!
- Only used in animal model

Indications to Hep B immunoglobulin

1. Postexposure prophylaxis
   - Within 24 hrs of needlestick, ocular or mucosal exposure or within 14 days of sexual exposure
2. Prevention of Hep B virus recurrence after liver transplantation
Back to the Question
A and D are out.
B – if the ab levels are low, it will still be low in 3 months time.

Immunisation is a good thing as per CDC - rules C out.

Answer E.