Vaccination against Hepatitis B in patients on chronic hemodialysis

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Hepatitis B virus (HBV) induced liver diseases are of concern in patients on chronic hemodialysis (PCHD). Virus transmission occurs from patient to patient in hemodialysis units, through blood transfusion and dialyser reusing.[1] The incidence of hepatitis B surface antigen (HBsAg) positive PCHD in western countries is approximately 0.1% with a prevalence of 1.2%.[2] Today it is recommended to vaccinate all PCHD with recombinant HBsAg, for example Engerix B.[1] Uremic patients elicit a weaker response to HBV vaccine than the general population (70% versus 98%, even with the doubled vaccine doses for the former).[1] Patients on chronic hemodialysis showed a lower antibody titer and a shorter period of titer maintenance than the general population.[2] Therefore, vaccination is recommended for PCHD with greater vaccine doses than the general population (40mcg recombinant HBsAg given intramuscular at intervals 0, 1, 2, and 6 months plus a booster in case of decreasing antibody level).[2] The level of hepatitis B surface antibody (HBsAb) in blood is considered protective at more then 10 iu/l. There is an opinion that this level should be higher in PCHD, even above 100 iu/l. That level is reached in only 54% of PCHD.[2] The immunity is characteristically compromised in uremia, specially cellular immunity, with disruption of various T lymphocyte functions. Patients on chronic hemodialysis with a poor response to recombinant HBsAg vaccination have many immunologic alterations: reduced number of CD4 receptors on T lymphocytes and their reduced proliferative response to HBsAg exposure, lower number of receptors for interleukin (IL)-1b and the IL-6 on T lymphocytes, less quantities of IL-2, interferon-gamma, IL-4, and adhesion molecules in serum.[3] Many schemes and vaccination modifications for nonresponding PCHD are proposed today. The most frequently proposed modification is intradermal inoculation of HBsAg instead of intramuscular injection: intradermal inoculation of HBsAg at a dose of 5-20mcg in different intervals (monthly or weekly, in 5-12 attempts).[2,4] The resultant level of HBsAb is higher then that attained by intramuscular inoculation. Intradermal vaccination is cheaper due to the smaller amount of vaccine required.[4] The vaccination response in females was shown to be better than in males, diabetics and older PCHD (more than 65 years). Malnutrition (measured as concentration of albumin, prealbumin and predialysis blood urea nitrogen) has a negative influence on recombinant HBsAg vaccination response.[5]

Finally, a weaker vaccination response is expected in PCHD with diabetes, older age, and nutritional deficiency. In these patients, before beginning Engerix-B vaccination, one of the alternative vaccinating schemes for PCHD, especially the intradermal way of vaccine inoculation must be considered.

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Determination of sensitivity and specificity of breast tumor diagnosis by health care providers (Behvarz)

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Breast cancer is the most common cancer and the most important cause of death from cancer in women. The incidence increases with age, so that a 70-year-old woman is at risk for breast cancer 10 times more than a 40-year-old woman is. Prognosis of breast cancer depends on the rate of metastasis and as in most patients tumor is diagnosed in a stage that it has been spread; the early diagnosis in order to decrease the rate of mortality is of great importance. There a collection of factors associated with increasing risk of breast cancer including the pregnancy history, ovarian activity, history of nonmalignant breast tumors, family history, genetic factors, nutritional and endocrinal factors.[1] The 5 year survival rate has increased from 78% in 1940 to 93% in 1993 and it is believed that this fact is due to the early diagnosis.[2] Therefore any trial for early diagnosis and