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## SUMMARY OF THESIS\*

CARRILHO, Flair José – **Infecção pelo vírus da hepatite B em unidades de hemodiálise do Estado de Santa Catarina. Fatores preditivos de infecção e epidemiologia molecular.** São Paulo, 2000. (Tese de Livre-Docência – Faculdade de Medicina da Universidade de São Paulo).

### HEPATITIS B VIRUS INFECTION IN HEMODIALYSIS CENTERS FROM SANTA CATARINA STATE, SOUTHERN BRAZIL. PREDICTIVE RISK FACTORS FOR INFECTION AND MOLECULAR EPIDEMIOLOGY

Patients under hemodialysis are considered high risk to acquire the hepatitis B virus (HBV) infection. Since few data are reported from Brazil, our **aim** was to assess the occurrence rates and possible risk factors for the HBV infection in the hemodialysis patients in all 22 Dialysis Centers from Santa Catarina State, south of Brazil.

**Patients and Methods:** This study includes 813 patients, 149 hemodialysis workers and 762 healthy controls matched by sex and age ( $\pm$  3yrs). Serum samples were submitted to HBV markers [total anti-HBc (ICE-HBc Detection Pack), HbsAg and HbsAb by Murex Biotech Ltd, United Kingdom].

The HBV viremia was detected by nested PCR (KANEKO *et al.* 1998 and SITNIK *et al.* 1999) and the HBV genotypes by *s* gene sequencing PCR technique (SANGER *et al.* 1977). In an univariate statistical analysis, the relation between HBV infection and the characteristics of patients and of their Dialysis Units were studied using Pearson  $\chi^2$  test, two-tailed unpaired t-test and Wilcoxon sum rank test. Multivariate statistical analysis was performed with stepwise logistic regression to verify the variables that were associated with HBV infection.

**Results:** The occurrence of the HBV infection was 10.0%, 2.7% and 2.7% among patients, hemodialysis workers and controls, respec-

tively. Amongst patients, the most frequent HBV genotypes were type A (30.6%), D (57.1%) and F (12.2%). The univariate analysis showed relation between HBV infection and the variable: total time in hemodialysis, type of dialysis machine used, hygiene and sterilization of the machine, number of times reusing the dialysis lines and filters, number of patients per worker and present contact with HCV infection. The adjusting of the logistic regression model showed that total time in hemodialysis, number of times of reusing the dialysis lines and filters, and number of patients per workers were significantly related to HBV infection. The sensitivity, specificity and the percentage of patients classified correctly were 60.5%, 71.2% and 70.1%, respectively.

**Conclusions:** 1. HBV infection among hemodialysis patients is very high. 2. The most frequent HBV genotypes were A, D and F. 3. By Odds Ratio the risk of a patient to become HBV positive increase 1.47 times each month of hemodialysis; increase 1.96 times if the patient's units reuse the lines and filters  $\geq$  10 times compared with hemodialysis units who reuse  $<$  10 times; increase 3.42 times if the number of patients per worker is more than five. 4. The HBV DNA *s* gene sequencing technique showed that some patients have the same strain pointing to a nosocomial transmission. 5. Our data clearly show the necessity of following the established universal precautions.

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