
Effect of Use of a Specific Monoclonal Antibody on Radioimmunoassay Results for Serum Cyclosporine, Michael K. Chooi and James E. Coates (Dept. of Lab. Med., Univ. of Alberta Hospitals, Edmonton, Alberta, Canada, T6G 2B7)

To determine the effect on the serum cyclosporine (CS) radioimmunoassay of substituting the specific monoclonal antibody from Sandoz (Basel, Switzerland) for their polyclonal antiserum, we assayed consecutive samples from four kidney-transplant (n = 76) and nine heart-transplant (n = 67) patients, using each reagent. For the kidney patients, monoclonal assay results correlated well with those of the polyclonal assay (Figure 1A) but were significantly lower (P <0.001). The mean monoclonal/polyclonal ratio was 0.67 (SD 0.13). Monoclonal assay results for heart recipients were also significantly lower (P <0.001) than those by the polyclonal assay. However, correlation of results (Figure 1B) was only moderate (r = 0.69). The correlation coefficient increased to 0.91 (n = 42) when the results for one patient (solid symbols in Figure 1B) were eliminated from the regression analysis. The mean ratio for the remaining samples was 0.54 (SD 0.11), which is significantly lower than the mean ratio for kidney-transplant patients (P <0.001). A lower ratio for heart-transplant patients is not unexpected because these patients may have increased concentrations of circulating CS metabolites because of poor perfusion or post-transplant cholestasis (2). The patient who was omitted from the revised regression had low ratios (0.26 ± 0.06, n = 18) during the first three weeks after transplantation, which coincided with a bout of cholestasis.

Reference

Cleaning of RA-1000 Probes, Matthew R. Baxter, John A. Hinds, John R. Gollogly, and Patrick Duffy (Dept. of Clin. Chem., The Prince Charles Hospital, Chermside, Australia 4032)

Operation of the Technicon RA-1000 analyzer depends on the use of an inert perfluorohydrocarbon coating of reagent and sample delivery systems and an air-segmented reagent stream to eliminate sample-to-sample and reagent-to-reagent carryover. The inert hydrocarbon heptacosfluorotributylamine [Technicon "Random Access Fluid," or "Fluorinet FC-43" (3M Australia) (1)] forms a coating on the surface of any tubing and probes that come into contact with sample or reagent and renders these surfaces nonwettable. For this process to occur satisfactorily, the surfaces must be thoroughly clean or the integrity of this inert surface film is lost.

The manufacturer recommends that reagent and sample probes be cleaned monthly or after every 5000 tests by aspirating 50 g/L sodium hypochlorite solution. It is important that this cleaning protocol be carried out as recommended by the manufacturer because the presence of a contaminated probe, which is easily overlooked, is a major cause of imprecision on the RA-1000. We have observed that this recommended procedure frequently fails to clean probes adequately and decreases instrument precision. We report here a simple and rapid method to measure carryover on the RA-1000 and procedures that effectively clean reagent and sample probes.

To detect carryover from a reagent probe, we assay potassium in a normal quality-control material before and after the reagent probe dispenses a 100 mmol/L potassium chloride solution from the reagent tray position of any selected analyte. Thus, we assay three cups of the same

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Fig. 1. Correlation of serum cyclosporine concentrations determined by RIA with polyclonal antiserum or specific monoclonal antibody for kidney- (A) and heart- (B) transplant patients
Solid line: regression line; dotted line: line of identity; solid symbols in B: values for a patient with cholestasis