

volume showed the tendency to increase. No significant difference was found between the normal and the hypertensive groups.

References

- 1) Kuwahara, M., et al.: Analysis of radiocardiogram by analog computer simulation. *Int. J. Biomed. Engng.* 1:13, 1972.

Radioimmunoassay of Serum Digoxin Using 1-125 Labeled 3-0-Succinyl Digoxigenin Tyrosine

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In aged patients control of digitalis therapy is frequently difficult. For this reason determination of serum digitalis level is indispensable in elderly patients.

Determination of serum digoxin level using 1-125 labeled 3-o-succinyl digoxigenin tyrosine (Schwarz Mann) was reported in this paper. Use of 1-125 label for digoxin RIA was reported previously only by Horgan and Riley. For routine examination of RIA γ emitter labeled tracer is more preferable to soft β emitter such as H-3 in several points.

In brief, assay method is as follows. Fifty microliters of serum, buffer solution, I-125 digoxin and antibody were thoroughly mixed and incubated at room temperature for 30 min. After incubation separation of bound and free digoxin was performed using dextran coated charcoal.

Addition of normal human serum is essential for the purpose of making standard curve. Canine serum could not replace human serum. Thirty minutes period of incubation is not essential. After 30 minutes incubation change to percent bound against time is minimal. The most critical

point in this assay system is the time from addition of DCC until centrifuge. Change of bound percent against time after addition of DCC is marked. Delayed separation causes the overestimation of digoxin level. Some other way of Bound and Free separation is desirable and now under investigation in our laboratory. Use of refrigerated centrifuge could raise Bo % about 10%.

Overall reproducibility of this assay system is fairly good. The value of working standard in our laboratory is now 1.08 ng/ml on an average, standard deviation of it is ± 0.11 ng/ml and cv is 10.2%. However scatter of within-assay is larger. Coefficient of variation of it is about 20%. This is supposedly caused by difficulty in controlling 5 minutes interval between charcoal addition and separation.

Among total determination of 133 cases, eleven patients had digitalis intoxication. Ten out of 11 cases serum digoxin level was over 3 ng/ml. One case showed 2.5 ng/ml of serum digoxin level. These results coincide well with results in reported papers.