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Development of an in-house RID method for the estimation of microalbumin in urine

Although the importance of detection of urinary albumin excretion in micro quantities has already been established for long term monitoring of complications due to diabetes, this diagnostic facility is not available in the state sector hospitals, due to non-avilability of a cost-effective method.

A cost-effective in -house method to quantify microalbumin in uring single radial immunodiffusion technique was developed. Agarose concentration of 10g/1 coated on glass plates was found suitable for the in-house RID method. A measurable diameter was obtained after 24 hours diffusion. Optimal antibody concentration of 10µl per 4.0ml of gel to cover an area of 5X5 $cm^2$was found satisfactory as this concentration covered the range of albumin from 0-200mg/l. Interassay precision of the method calculated as SD based on the duplicate measurements was 0.9, (n=34). The maximum CV % observed was 16%.

Albumin: creatinine ratios of 185 adult subjects were not normally distributed and the calculated 95 percentile range was 0.1-4mg/mmol.

Radial immunodiffusion method was found suitable for the determination of urine albumin concentration in the range of 0-200mg/l for the measurement of microalbumin in urine to monitor the long term complications in diabetes. Due to the utilization of small volume of antibodies, compared to other immunochemical methods, RID method was cost-effective