To determine the serum concentration of Vancomycin in patients undergoing intermittent hemodialysis

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INTRODUCTION

- Intermittent hemodialysis is usually done in patients with chronic kidney disease up to thrice weekly
- CKD patients are more susceptible to infections- second leading cause of mortality
- IDSA guidelines- Vancomycin administered **every 96 hours** and after every dialysis session (high-flux dialyzers)
- Predominantly high usage of low-flux dialyzers in Indian hospitals
- Patients with compromised renal function- accumulation of the antibiotic- INCREASED VANCOMYCIN CONCENTRATION
- Diffusion of vancomycin through the dialysate membrane can happen- DECREASED VANCOMYCIN CONCENTRATION

AIM & OBJECTIVE

- **PRIMARY:**

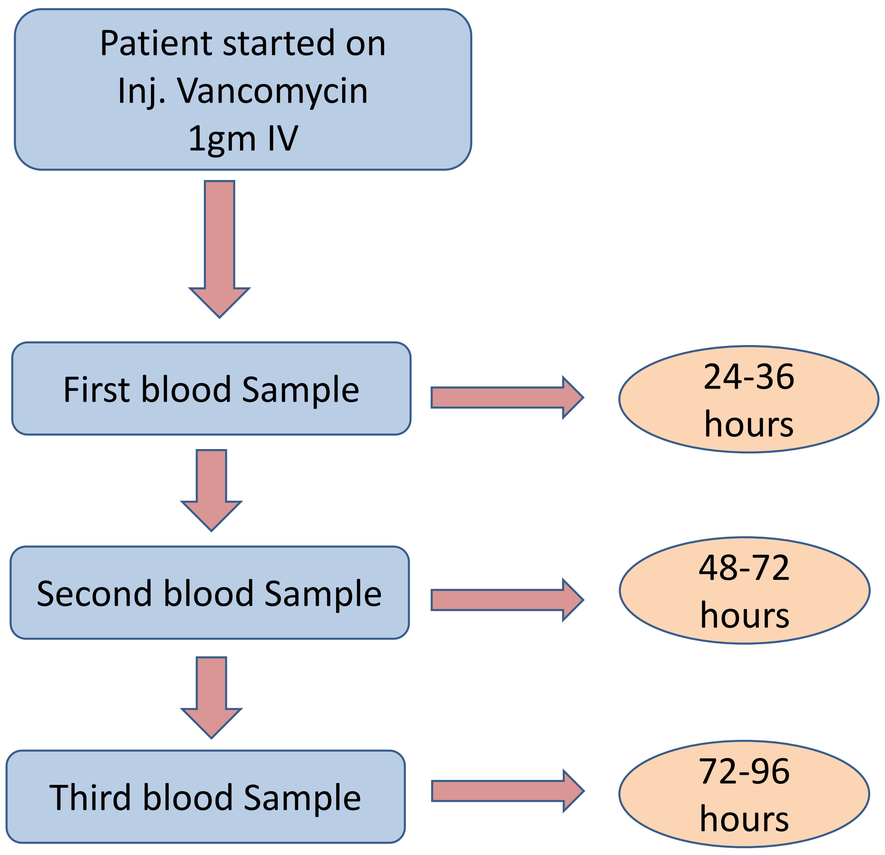
  To determine the serum vancomycin concentration in patients undergoing hemodialysis over a period of 96 hours

- **SECONDARY:**

  A) To determine the percentage of patients who achieved the recommended vancomycin concentration.

  B) To determine the mean time taken to remain above the recommended vancomycin concentration.

METHODOLOGY



- All the samples were collected before dialysis
- The samples were centrifuged and serum was separated
- The serum vancomycin concentration was measured using UV-HPLC

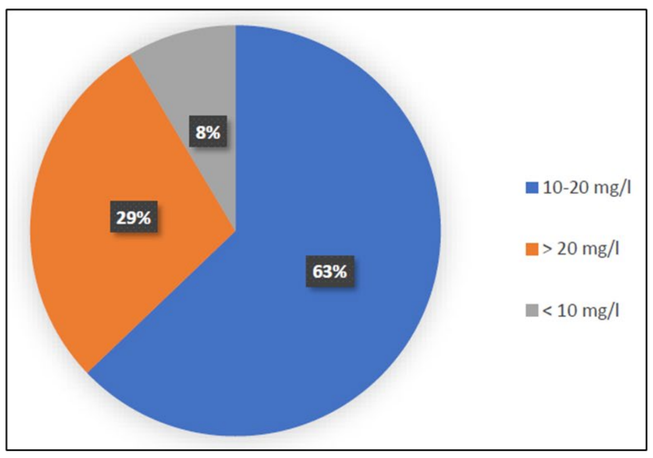
BASELINE DATA

Total of 40 subjects were recruited

AGE	Median (Range)	51.3 (38-66)
SEX- MALE	N (%)	27 (67.5)
SEX-FEMALE	N (%)	13 (32.5)

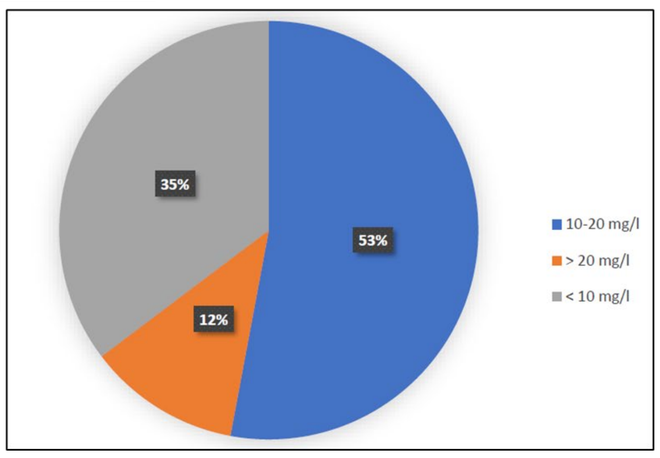
RESULTS

Number of samples collected	MEAN TIME (SD) of procurement of sample (in hours)	MEAN serum vancomycin concentration (in mg/l)
SAMPLE 1	35.45 (8.76)	17.2 (6.12)
SAMPLE 2	73.88 (15.69)	14.62 (6.99)
SAMPLE 3	91.89 (11.03)	12.90 (6.59)



Proportion of patients and range of vancomycin concentrations at the end of 48 hours

Proportion of patients and range of vancomycin concentrations at the end of 96 hours



CONCLUSION

- Only **19%** of the patients were in the therapeutic range throughout the 4-day treatment duration
- Proportion of patients **below** the therapeutic range increased **four times** at the end of 96 hours when compared to their initial (24-48 hours) serum vancomycin concentrations
- Highly recommend the need for dose optimization/adjustment by therapeutic drug monitoring **within day 2** of vancomycin therapy

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