SUMMARY AND CONCLUSION

The work on “Studies on renal failure and its management in dogs” was conducted in the Department of Veterinary Medicine, Ranchi Veterinary College, Ranchi. The salient features of investigations were summarized as follows:

Clinical observations:
1. The clinical signs observed in dogs suffering from acute renal failure were anorexia, depression, vomition, diarrhoea, dehydration, uremic breath, subnormal temperature, elevated respiratory and pulse rate.
2. Following conservative and dialytic treatments, the body temperature increased significantly (P<0.01) towards normal. Whereas respiratory and pulse rate decreased significantly (P<0.01) and became normal.

Hematological observations:
1. Haemoglobin, PCV, TEC, TLC and DLC values of groups T1, T2 and T3 revealed non-significant differences among groups and treatment intervals. Similar findings were also observed between T4 and T5 groups.

Biochemical observations:
1. Blood urea nitrogen (BUN) and serum creatinine levels of dogs treated with the combination of dopamine and furosemide (T3) therapy on 3rd and 6th post treatment days were significantly lower than those treated with dopamine (T1) and furosemide (T2) alone, indicating that a combination of dopamine and furosemide therapy
(T3) showed better response as compared to dopamine and furosemide separately.

2. BUN and serum creatinine levels in dogs treated with peritoneal dialysis 4 times daily (T5) were significantly lower on all the post treatment days (3rd, 6th and 9th) as compared to peritoneal dialysis twice daily (T4) indicating that, peritoneal dialysis 4 times daily (T5) had better response as compared to peritoneal dialysis twice daily (T4).

3. The levels of total serum protein, serum albumin, globuline and albumin - globulin ratio of groups T1, T2 and T3 revealed non-significant differences among the groups and treatment intervals. In group T4 and T5 the values of total protein, albumin, globulin and albumin - globulin ratio revealed non-significant differences between groups. There was non-significant reduction in total serum protein and albumin in T4 group. While in T5 group the total serum protein and albumin reduced significantly (P<0.01) on different post treatment days.

4. Serum sodium and potassium levels of groups T1, T2 and T3 revealed non-significant differences among groups and treatment intervals. Similar findings were also observed between T4 and T5 groups.

Urine analysis observations:

1. Routine analysis of urine revealed proteinuria ranging from (+) to (++++) in 15 acute renal failure cases. Further, the microscopic examination of urine sediments revealed the presence of WBC, RBC, WBC cast, granular cast, hyaline cast, renal epithelial cells, transitional epithelial cells and squamous epithelial cells. The pH and specific gravity were in the normal range.
2. After conservative and dialytic treatments, proteinuria was either absent or present to a moderate degree (+) on ninth day of experiment. The microscopic examination of urine sediments revealed absence or reduction in the number of casts and cells.

Conclusion:

On the basis of present study it has been concluded that:

1. Out of three conservative treatments, the combination of dopamine and furosemide was found to be better in managing the cases of acute renal failure in dogs.

2. Peritoneal dialysis twice daily was found to be effective in reducing the magnitude of azotaemia in mild cases of acute renal failure. But in severe cases, peritoneal dialysis 4 times daily was found very useful.

3. Peritoneal dialysis was highly beneficial in severe cases of acute renal failure.

4. Other measures like continuous ambulatory peritoneal dialysis (CAPD), Haemodialysis and renal transplant used for the management of acute & chronic renal failure cases in dogs need to be tried and compared with the present findings for better results.
SUMMARY AND CONCLUSION

The work on “Studies on renal failure and its management in dogs” was conducted in the Department of Veterinary Medicine, Ranchi Veterinary College, Ranchi. The salient features of investigations were summarized as follows:

A total number of 150 general clinical cases of dogs were screened for renal failure out of which 25 cases were diagnosed as acute renal failure (ARF) cases and were selected for the present study.

25 clinical cases of ARF were divided into two parts i.e. conservative and dialytic treatment groups on the basis of blood urea nitrogen (BUN) and serum creatinine (SC) levels. The conservative treatment group (BUN<100mg/dl and SC < 6 mg/dl) was further sub grouped as T1, T2 and T3 groups on the basis of therapeutic regimens. The dialytic treatment group (BUN > 100 mg/dl and SC > 6 mg/dl) was also sub grouped as T4 and T5 on the basis of dialysis frequencies. Group T1 was treated with combination of fluid therapy and dopamine. Group T2 was treated with combination of fluid therapy and furosemide. Group T3 was treated with a combination of fluid therapy, dopamine and furosemide; Group T4 was put on peritoneal dialysis performing two consecutive exchanges per day along with fluid therapy and Group T5 was put on peritoneal dialysis performing four consecutive exchanges per day along with fluid therapy.

The present study was conducted to evaluate the effect of different conservative treatments and dialysis frequencies and also to observe the clinical symptoms and to record the haematobiochemical changes and urine analysis.
The clinical signs observed in dogs suffering from acute renal failure were anorexia, weakness, depression, vomition, diarrhoea, dehydration, uremic breath, sub normal temperature, elevated respiratory and pulse rates. Following conservative and dialytic treatment, all the dogs showed normal clinical signs with marked improvements in appetite and general condition. The body temperature increased significantly (P<0.01) towards normal where as respiratory and pulse rate decreased significantly (P<0.01) and became almost normal.

The mean values of Hb, PCV, TEC, TLC and DLC of groups T1, T2 and T3 revealed non-significant variation among groups and treatment intervals. Similarly in groups T4 and T5 the above parameters showed non significant difference between groups and treatment intervals. However, studies on TLC revealed mild to severe leucocytosis in 8 ARF cases, while DLC showed neutrophilia associated with lymphopenia in 9 cases of acute renal failure.

Blood urea nitrogen (BUN) and serum creatinine levels of dogs treated with combination of dopamine and furosemide (T3) therapy on 3rd and 6th of post treatment were significantly lower than those treated with dopamine (T1) and furosemide (T2) separately indicating that, a combination of dopamine and furosemide therapy (T3) showed better response as compared to dopamine (T1) and furosemide (T2) alone. Similarly, BUN and Serum creatinine levels of dogs kept on peritoneal dialysis 4 times daily (T5) were significantly lower on 3rd, 6th and 9th day of post-treatment as compared to peritoneal dialysis twice daily (T4) indicating that, peritoneal dialysis 4 times daily (T5) had better response than peritoneal dialysis twice daily (T4).
The mean values of total serum protein, albumin, globulin and albumin-globulin ratio of groups T1, T2 and T3 revealed non-significant difference among groups and treatment intervals. Similarly in groups T4 and T5, the mean values of total serum protein, albumin, globulin and albumin-globulin ratio showed non-significant variation between groups. However in group T4, total serum protein and albumin revealed marked reduction but statistically non-significant; while in group T5 the total serum protein and albumin reduced significantly (P<0.05) on different post treatment days.

The mean values of serum sodium and potassium of groups T1, T2, and T3 revealed non-significant variation among groups and treatment intervals. Similarly in groups T4 and T5 the serum sodium and potassium showed non-significant difference between groups and treatment intervals. However studies on serum sodium revealed a mild to moderate hypernatremia in 11 ARF cases while serum potassium showed hyperkalemia in 6 cases of acute renal failure.

Routine analysis of urine revealed proteinuria ranging from distinct narrow ring (+) to very wide ring (+++) in 14 acute renal failure cases. Further, the microscopic examination of urine sediments revealed the presence of WBC, RBC ,WBC cast, granular cast, hyaline cast, renal epithelial cells, transitional epithelial cells and squamous epithelial cells. The PH and specific gravity were in the normal reference ranges. Following conservative and dialytic treatment, proteinuria was either absent or present to a distinct narrow ring (+) on ninth day of experiment. The microscopic examination of urine sediments revealed absence or reduction in the number of casts and cells.

Conclusion:
On the basis of present study. It has been concluded that :

1. Out of three conservative treatments, the combination of dopamine and furosemide was more effective than other two in managing the cases of acute renal failure.

2. Peritoneal dialysis with two frequencies per day was found to be effective in reducing the magnitude of azotaemia in mild cases of acute renal failure but in severe cases, peritoneal dialysis with four frequencies per day was found more effective.

3. Peritoneal dialysis was highly beneficial and effective when the magnitude of azotaemia and the severity of uremic signs was not responsive to fluid and diuretic therapy.

4. Further studies for the management of acute and chronic renal failure is advocated with special reference to continuous ambulatory peritoneal dialysis (CAPD) and Haemodialysis.