



ORIGINAL RESEARCH PAPER

General Surgery

STUDY ON COMMON ORGANISMS AND NUTRITIONAL DEFICIENCIES IN CKD PATIENTS WITH CELLULITIS

KEY WORDS: Chronic Kidney Disease, Cellulitis, Organisms, Nutritional Deficiencies, Anemia, Hemoglobin, Culture and Sensitivity, Renal Diet.

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ABSTRACT

- Skin and soft tissue infections cause increased morbidity and mortality to chronic kidney disease patients.
- Hence finding out the common organisms and nutritional deficiencies in these patients will provide us an institutional protocol for treatment of these patients who are already immunocompromised.
- In this study population of seventy patients common organism causing cellulitis in CKD patients were klebsiella species followed by acinetobacter.
- More than half of these patients were anaemic and malnourished
- Due to the immune-compromised and malnourished status of Chronic Kidney Disease patients any infection should be treated initially with broad spectrum anti biotics.

Vigilant monitoring of renal parameters and anemia correction to be done. Renal diet should be prescribed to avoid malnourishment and volume overload

AIM OF THE STUDY

- To study about the common organisms causing cellulitis in Chronic kidney disease patients.
- To assess the nutritional deficiencies in Chronic kidney disease patients with cellulitis.

Justification of The Study

- CKD patients have an increased risk of infection including skin and soft tissue infections resulting in increased morbidity and mortality.
- Causes of this increased risk are multifactorial. Uremia is known to adversely impact innate and adaptive immunity.
- Renal metabolism of immunologically active proteins is also impaired in these patients.
- The replacement of renal function via kidney transplant or dialysis adds to risk of infection through factors such as use of immunosuppressive medications, interruption of cutaneous barriers and white blood cells and complement dysfunction from dialysis membranes.
- Frequent exposure to hospitals and medical facilities carries with it potential increased exposure to various pathogens.
- Hence finding out the common organisms causing cellulitis in CKD patients and assessing their nutritional deficiencies provides us the better protocol for the treatment and recovery of cellulitis in CKD patients.

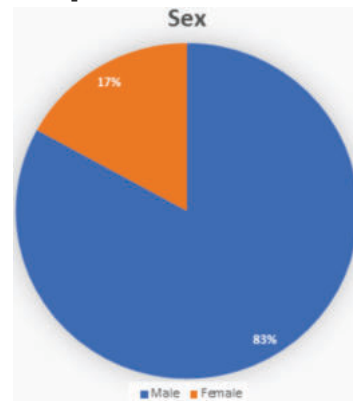
MATERIALS AND METHODS

- A. Study design: Descriptive analytical study
- B. Study setting: The study will be conducted in patients admitted with chronic kidney disease with cellulitis in TMCH
- C. Study subjects: The patients admitted in the TMCH with chronic kidney disease with cellulitis.
- D. Study duration: January 2021- August 2022
- E. Inclusion criteria:
 - All patients admitted in TMCH with chronic kidney disease with cellulitis
- F. Exclusion criteria:
 - age more than 80 years
 - patients with gangrenous changes in the limbs.
 - Haemodynamically unstable patients
- G. Sample size: 70 patients (based on institutional statistics)
- H. Parameters analysed:
 - Wound swab / blood culture and sensitivity
 - Blood urea and creatinine
 - Serum total protein, albumin and globulin
 - Haemoglobin
 - Serum calcium
 - From the participants of the study above mentioned

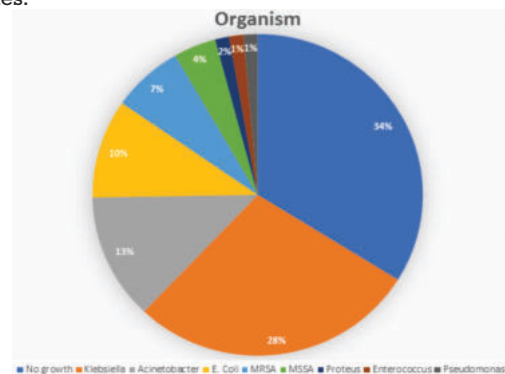
parameters were collected and from which the common organism causing cellulitis in chronic kidney disease patients and common nutritional deficiencies in CKD cellulitis were analysed and hence used for the early recovery of the patient.

Statistics And Analysis

The study period of January 2021- August 2022, 70 CKD patients who presented with cellulitis was selected by inclusion and exclusion criteria and investigations and wound swabs sent accordingly. Fasciotomy and wound debridement were done in all 70 patients.



Out of the studied 70 patients, 12 were females and 58 were males.



Among the 70 study population studied, wound swabs of 24 patients showed no growth in culture.

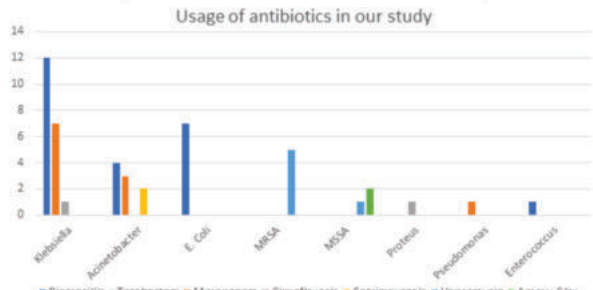
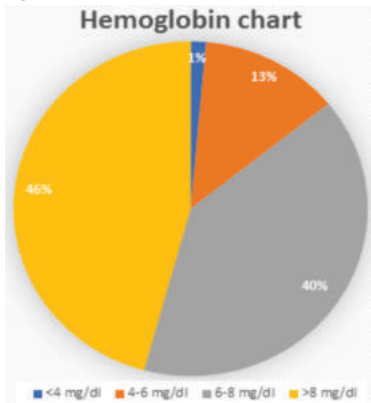
The most common organism was found to be **Klebsiella** species which was found in 20 patients.

The second most common organism was found to be *Acinetobacter* species which was found in 9 patients.

Organisms Grown	Number Of Patients	Percentage Of Total Study Population
No growth	24	34.2%
Klebsiella	20	28.5%
Acinetobacter	9	12.8%
E. Coli	7	10%
MRSA	5	7.1%
MSSA	3	4.2%
Pseudomonas	1	1.4%
Proteus	1	1.4%
Enterococcus	1	1.4%

Biochemical Parameter	Number Of Patients	Percentage Of Total Study Population
Hemoglobin - <8mg/Dl	38	54.2%
Total Protein - <6 Mg/Dl	32	45.7%
Albumin - <3.5 Mg/Dl	42	60%
Globulin - <2.5 Mg/Dl	28	40%
Calcium - <9 Mg/Dl	9	12.8%

Among the 70 studied population the 38 patients were found to be anaemic.



RESULTS

In the study population of 70 patients, most common organism was found to be Klebsiella species followed by Acinetobacter species.

Most of the organisms were treated by broad spectrum antibiotics such as Piperacillin+ Tazobactam in appropriate doses according to renal parameters. Out of the total study population, 38 patients (54%) were found to be anemic. Hypoalbuminemia was found in 42 patients (60%)

Serum calcium was found to be lower in 9 patients (12%)

Total protein was found to be less than 6g in 32 patients (45.7%)

Globulin was found to be lower in 28 patients (40%)

CONCLUSION

This study is a small sample observational study. These inferences may need further elucidation by larger study population and follow up.

Inferences :

- Due to the immuno-compromised and malnourished status of Chronic Kidney Disease patients any infection should be treated initially with broad spectrum anti biotics.
- Vigilant monitoring of renal parameters and anemia correction to be done. Renal diet should be prescribed to avoid malnourishment and volume overload.

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