characteristics of 64 patients with renal MIDD.[7] Light microscopy confirmed nodular sclerosis in 61% of their patients. Our study showed nodular glomerulopathy in 53.3% patients in the MIDD group.

The monoclonal light chains in MIDD can get filtered in the glomeruli, forming light chain casts. A few studies have compared the dual lesion of LCDD and LCCN and LCDD.[2,6] Our study witnessed concurrence of LHCDD+LCCN, while LHCDD itself was less commonly reported in the literature.[8]

Lin *et al.* described that from clinical and pathologic perspectives, LCDD with cast nephropathy was distinct from MIDD cases.[6] Similar to our study, they evidenced that concomitant cast nephropathy had higher serum creatinine and sub-nephrotic proteinuria.

Zand *et al.* included 87 patients comprising 45 with LCDD, 29 with myeloma cast nephropathy, and 13 with LCDD + cast nephropathy.[2] Patients with LCDD had a higher degree of albuminuria than those with LCDD + cast nephropathy. Similar to our study, AKI and higher serum creatinine were observed in cases with LCDD + cast nephropathy than in those with just LCDD.

Our study had limited information on the laboratory parameters like free light chain assay, electrophoresis, and the follow-up of some patients.

Conflicts of interest: There are no conflicts of interest.

CV Malathi[1], KS Jansi Prema[1], Anila Abraham Kurien[1]

[1]Department of Pathology, Renopath Center for Renal and Urological Pathology, Chennai, Tamil Nadu, India

***Corresponding author:** Anila Abraham Kurien, Department of Pathology, Renopath Center for Renal and Urological Pathology, Chennai, Tamil Nadu, India. E-mail: anila_abraham08@yahoo.com*

References

1. Nasr SH, Fidler ME, Said SM, Koepplin JW, Altamirano-Alonso JM, Leung N. Immunofluorescence staining for immunoglobulin heavy chain/light chain on kidney biopsies is a valuable ancillary technique for the diagnosis of monoclonal gammopathy-associated kidney diseases. Kidney Int 2021;100:155-70.
2. Zand L, Nasr SH, Gertz MA, Dispenzieri A, Lacy MQ, Buadi FK, *et al*. Clinical and prognostic differences among patients with light chain deposition disease, myeloma cast nephropathy and both. Leuk Lymphoma 2015;56:3357-64.
3. Shankar M, Anandh U, Guditi S. Multiple facets of multiple myeloma in kidney biopsy: A multicenter retrospective study. Indian J Nephrol 2024;34:31-6.
4. Sakhuja V, Jha V, Varma S, Joshi K, Gupta KL, Sud K, *et al*. Renal involvement in multiple myeloma: A 10-year study. Ren Fail 2000;22:465-77.
5. Sethi S, Nast CC, D', Agati VD, Fervenza FC, Glassock RJ, *et al*. Standardized reporting of monoclonal immunoglobulin-associated renal diseases: Recommendations from a mayo clinic/renal pathology society working group. Kidney Int 2020;98:310-313.
6. Lin J, Markowitz GS, Valeri AM, Kambham N, Sherman WH, Appel GB, *et al*. Renal monoclonal immunoglobulin deposition disease: The disease spectrum. J Am Soc Nephrol 2001;12:1482-92.
7. Nasr SH, Valeri AM, Cornell LD, Fidler ME, Sethi S, D', *et al.* Renal monoclonal immunoglobulin deposition disease: A report of 64 patients from a single institution. Clin J Am Soc Nephrol 2012;7:231-9.
8. Wang Y, Chen D, Hu R, Zhang Y, Liang D, Xu F, *et al*. Clinicopathological characteristics of light and heavy chain deposition disease: A case series. Am J Kidney Dis 2024;84:447-456.e1.

How to cite this article: Malathi CV, Jansi Prema KS, Kurien AA. An Observational Study on the Clinicopathologic Features of Renal Monoclonal Immunoglobulin Deposition Disease. Indian J Nephrol. 2025;35:417-9. doi: 10.25259/IJN_708_2024

Received: 18-11-2024; **Accepted:** 24-12-2024; **Online First:** 20-02-2025; **Published:** 10-04-2025

DOI: 10.25259/IJN_708_2024

Supplementary available on: https://dx.doi.org/10.25259/IJN_708_2024

Nasal Methicillin Resistant *Staphylococcus Aureus* Colonisation and the Incidence of Invasive Staphylococcal Infection in Patients Undergoing Hemodialysis

Dear Editor,

Methicillin resistant *Staphylococcus aureus* (MRSA) is a nosocomial pathogen associated with significant morbidity and mortality. People with diabetes, intravenous drug abusers, and patients with recurrent hospital admissions are more likely to develop infection, usually following colonization. This makes targeted screening an attractive option for infection prevention and control.[1,2] Data on MRSA surveillance and invasive infections in rural to semi-urban settings of low- and middle-income countries are essential for formulating infection surveillance strategies and antibiotic policies. The current study aims to determine the MRSA colonization prevalence in a cohort of patients with end-stage renal disease (ESRD) undergoing dialysis.

This prospective observational cohort study was done in the hemodialysis (HD) unit in Kerala. The hospital predominantly caters to middle income patients. Demographic data, and previous hospitalization details, including infection with *Staphylococcus* were collected from hospital records. Comorbid illnesses were defined according to standard criteria.

Trained personnel inserted dry swabs 1 cm into each nasal vestibule and rotated 4 times while maintaining even contact with the nasal mucosa. All specimens were collected within 12 hours of admission. Culture and sensitivity tests were done according to standard methodology.[3] Those positive for MRSA colonization were treated with mupirocin topical ointment and retested every 3 weeks until negative.

Patients were followed up every three months for 1 year. Infections were defined according to National Healthcare Safety Network (NHSN) surveillance definitions.[4]

Colonization was defined as isolating MRSA from nasal smears without evidence of active infection at any site. Invasive infections were determined according to Centre for disease control and prevention NHSN surveillance criteria.[4]

A total of 123 patients were included in the study. Two patients did not consent and two were lost to follow up. The final analysis included 119 patients. The demographic data is shown in Table 1. Males were predominant, and the majority were undergoing HD via arteriovenous fistula 2-3 times a week. Eight patients had internal jugular or femoral dialysis catheters. Four patients were positive for MRSA. All four underwent nasal decolonization with mupirocin ointment topical application for five days and when subjected to repeat swabbing after two weeks, were found to be negative. On follow-up, 25 (21%) patients had developed invasive infections. Eight patients had staphylococcal infections, of which two were bloodstream, and six were skin and soft tissue infections. None of these patients had positive surveillance nasal swabbing. The predominant infections were bloodstream, skin, and soft tissue infections. The distribution of isolated organisms is given in Figure 1. *Pseudomonas aeruginosa* was the most frequently isolated organism.

Table 1: Demographic characteristics, risk factors for MRSA colonization and hemodialysis patterns in the patients

	Number (%)
Gender	
Male	97 (80)
Female	24 (20)
Comorbidities	
Diabetes	70 (57.9)
Hypertension	38 (31.4)
CAD	110 (90.9)
CVA	24 (19.8)
Frequency of hemodialysis	
Once weekly	3 (2.5)
Twice weekly	31 (25.6)
Thrice weekly	87 (71.9)
Duration of hemodialysis	
Upto three months	11 (9.1)
3 months to 1 year	21 (17.3)
More than 1 year	89 (73.6)
Hospital admission in the last 90 days	32 (26.4)
Risk factors for MRSA colonization	
Skin and soft tissue infections	9 (7.4)
Presence of implants or devices	12 (9.9)
Intravenous antibiotics in the last 90 days	44 (36)
Recent surgery or interventional procedure	118 (97.5)
Comorbid illnesses	116 (96)
Smoking	13 (10.7)
Presence of AV fistula	111 (91.7)

CAD: Coronary artery disease, CVA: Cerebrovascular accident, MRSA: Methicillin resistant *Staphylococcus aureus*, AV: Arteriovenous.

Nasal colonization with MRSA is considered a risk factor for invasive infections. Invasive infections by MRSA are associated with high mortality in ESRD patients.[5] The human nose is the largest ecological reservoir for human strains of *Staphylococcus aureus*. Around the world, the incidence of MRSA nasal carriage has ranged from 2% to 45%.[6]

The MRSA colonization data on Indian patients range from 10% to 80%. The pooled prevalence of MRSA in India from 2015 to 2020 was 37%.[7,8] One study on nasal carriage by healthcare workers in an ICU in Kerala found an 18% carrier rate among ICU staff.[9] Carriage rates in community settings have been reported to be lower. The variation in the MRSA nasal carriage rate in various studies can be attributed to the admission rates, the prevalent infection prevention measures, and whether the study was done during an outbreak.

The 3% detection rate in this study is low compared to other similar studies.[10,11] The nasal swabbing, done within 12 hours of admission to the hospital for dialysis, could mean that our study population effectively represented the relatively low rates in the community.

The other important observation was that the major pathogens causing invasive infections in the follow-up period belonged to the gram-negative group. *Pseudomonas aeruginosa* had the greatest number of isolations from blood and pus samples. This questions the usefulness of nasal surveillance and MRSA colonization detection and eradication programs in preventing infections in patients undergoing HD in our setting. Whether the surveillance

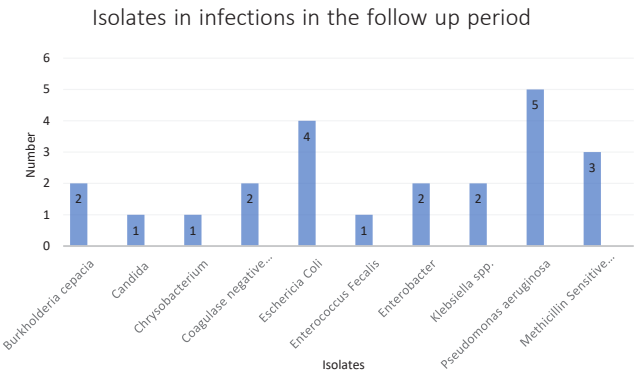

Figure 1: Isolation of pathogens in invasive infections in the follow up period. MSSA: Methicillin-sensitive *Staphylococcus aureus*.

target should move towards gram-negative infections rather than gram-positive ones is a question to be answered by further research.

Conflicts of interest: There are no conflicts of interest.

Navya Mathew[1], Shweta Ann Suresh[1], Lisha Pallivalappil[2], Kundoly Velayudhan Suseela[3]

Departments of [1]Pulmonary Medicine, [2]Pulmonary Medicine and Critical Care, [3]Microbiology, Amala Institute of Medical Sciences, Thrissur, Kerala, India

***Corresponding author:** Lisha Pallivalappil, Department of Pulmonary Medicine and Critical Care, Amala Institute of Medical Sciences, Thrissur, Kerala, India. E-mail: drlishapvranjith@gmail.com*

References

1. Turner NA, Sharma-Kuinkel BK, Maskarinec SA, Eichenberger EM, Shah PP, Carugati M, *et al*. Methicillin-resistant staphylococcus aureus: An overview of basic and clinical research. Nat Rev Microbiol 2019;17:203-18.
2. Dantes R, Mu Y, Belflower R, Aragon D, Dumyati G, Harrison LH, *et al*. National burden of invasive methicillin-resistant Staphylococcus aureus infections, United States, 2011. JAMA Intern Med 2013;173:1970-8.
3. CLSI. Performance standards for antimicrobial susceptibility testing, 30th ed. CLSI document M100. Clinical and Laboratory Standards Institute; 2023.
4. U.S. Centers for Disease Control and Prevention. The National Healthcare Safety Network (NHSN) Manual: NHSN [2022] Toolkit and Guidance for External Validation. Atlanta, GA: Division of Healthcare Quality Promotion, National Center for Emerging and Zoonotic Infectious Diseases. https://www.cdc.gov/nhsn/pdfs/validation/2022/2022-nhsn-ev-guidance-508.pdf
5. Bassetti M, Del Puente F, Magnasco L, Giacobbe DR. Innovative therapies for acute bacterial skin and skin-structure infections (ABSSSI) caused by methicillin-resistant Staphylococcus aureus: Advances in phase I and II trials. Expert Opin Investig Drugs 2020;29:495-506.
6. Wolde W, Mitiku H, Sarkar R, Shume T. Nasal carriage rate of staphylococcus aureus, Its associated factors, and antimicrobial susceptibility pattern among health care workers in Public Hospitals, Harar, Eastern Ethiopia. Infect Drug Resist 2023;16:3477-86.
7. Patil SS, Suresh KP, Shinduja R, Amachawadi RG, Chandrashekar S, Pradeep S, *et al*. Prevalence of methicillin-resistant Staphylococcus aureus in India: A systematic review and meta-analysis. Oman Med J 2022;37:e440.
8. Ghia CJ, Waghela S, Rambhad G. A systemic literature review and meta-analysis reporting the prevalence and impact of methicillin-resistant staphylococcus aureus infection in India. Infect Dis (Auckl) 2020;13:1178633720970569.
9. Jayadhar AT, Jitendranath A, Thomas AA, Sarika G S. Nasal carriage of meticillin-resistant Staphylococcus aureus amongst healthcare workers of intensive care unit of a tertiary care centre in South India: An observational cross-sectional study. J Patient Saf Infect Control 2020;8:64-7. Available from: https://www.jpsiconline.com/text.asp?2020/8/2/64/304219
10. Mehta Y, Hegde A, Pande R, Zirpe KG, Gupta V, Ahdal J, *et al*. Methicillin-resistant staphylococcus aureus in intensive care unit setting of India: A review of clinical burden, patterns of prevalence, preventive measures, and future strategies. Indian J Crit Care Med 2020;24:55-62.
11. AbuTaha SA, Al-Kharraz T, Belkebir S, Abu Taha A, Zyoud SH. Patterns of microbial resistance in bloodstream infections of hemodialysis patients: A cross-sectional study from Palestine. Sci Rep 2022;12:18003.

How to cite this article: Mathew N, Suresh SA, Pallivappil L, Suseela KV. Nasal Methicillin Resistant *Staphylococcus Aureus* Colonisation and the Incidence of Invasive Staphylococcal Infection in Patients Undergoing Hemodialysis. Indian J Nephrol. 2025;35:419-21. doi: 10.25259/IJN_418_2024

Received: 25-07-2024; **Accepted:** 07-01-2025; **Online First:** 20-02-2025; **Published:** 10-04-2025

DOI: 10.25259/IJN_418_2024

Usefulness of Telemedicine in Nephrology: The Role Beyond COVID-19

Dear Editor,

Most encouraging reports of the implementation of telemedicine in nephrology are from developed countries. There are few Indian studies on telemedicine in nephrology, especially on its impact after the COVID-19 pandemic. There is considerable variability between nephrology center policies and acceptability among patients in the context of telehealth.[1] We have published our experience of telemedicine[2,3] for kidney transplants during the pandemic. We report the feasibility, acceptability, and effectiveness of telemedicine in kidney care.

This was an observational, prospective, ethically approved study conducted between 1st June 2020 and 31st May 2024 at Fortis Vasant Kunj, Delhi. The procedure involved continually informing patients and relatives of the availability of telenephrology services for clinic visits. Our telenephrology technique was synchronous (both patient and doctor on the same platform) and comprised of an electronic medical record database called "Healthplix". It is a digital application for identifying patients' illnesses; writing prescriptions and treatments; scheduling and managing online consults; providing automated reminders to patients and doctors; customizing letterheads, prescriptions, investigations, and history all on one platform. This application is linked to WhatsApp and email. An online video or phone consultation was arranged as per time slot availability for every request. Patients without a smartphone (n=20) were assisted by a paramedical worker. A formatted message by Healthplix was delivered to patients/guardians via WhatsApp or Email as an output of the meeting. The results included current