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A Prospective Study on the Incidence, Risk Factors, and Treatment Strategies for Cellulitis Patients Admitted to DG Hospital

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Abstract: This study aims to investigate the incidence, risk factors, and treatment protocol of cellulitis among hospitalized patients to improve clinical management. A prospective observational study was conducted on 120 patients diagnosed with cellulitis at DG Hospital between September 2024 and February 2025, reviewing clinical records for demographic data, risk factors, clinical presentation, and treatment modalities. The incidence rate was 8.5%, predominantly affecting males (62.4%) over 26 years, especially in the 26-40 age groups, with common risk factors including tobacco use (25.8%) and comorbidities such as diabetes mellitus and hypertension (22.5%). The most affected site was the left leg (43), followed by the right leg (32), while both hands and umbilical cellulitis have the lowest incidences. Treatment strategies aligned with current best practices, with incision and drainage being performed for purulent cases, while magnesium sulfate ($MgSO_4$) dressings was used in non-purulent cases, revealing a negative correlation between disease severity and outcomes. Early presentation was significantly associated with lower disease severity ($p<0.05$). These findings underscore the importance of prompt diagnosis and management of comorbidities to reduce morbidity and improve patient prognosis.

Keywords: *Incidence of Cellulitis; Risk Factors; Treatment Outcomes; Complications, Diabetes Mellitus.*

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I. INTRODUCTION

Cellulitis is a bacterial infection that impacts the deeper layers of the skin, leading to symptoms such as redness, warmth, swelling, and tenderness. Cellulitis is a common skin and soft tissue infection that can occur anywhere on the body, but it most often affects the lower limbs, which are involved in approximately 70–88% of cases [1, 2]. The organism, which can be either an external or natural skin flora, is mostly a bacterial infection. It primarily impacts the skin, which is more susceptible to fractures, cracks, blisters, ulcerations, cuts, bite wounds, and injuries incurred in a hospital setting, such as those resulting from surgical procedures or IV cannulation. The most frequently affected areas are the lower limbs since the skin there is more prone to the previously stated traumas [3, 4]. The primary causative organisms are Streptococcus pyogenes and Staphylococcus aureus, including methicillin-resistant strains (MRSA), followed by β-hemolytic streptococci and gram-negative bacilli [5, 6].

Risk factors for cellulitis are broadly categorized into local and systemic types. Local risk factors include traumatic injury, leg ulcers, toe-web intertrigo, venous eczema, and fungal infections like tineapedis, while systemic risk factors include obesity, diabetes mellitus, lymphedema, immunosuppression, and a history of previous cellulitis episodes [7]. Treatment typically begins with antibiotics aimed at the most prevalent bacteria, which may be adjusted according to the patient's response or the results of tests. In addition to antibiotics, it is crucial to rest the affected area, maintain its elevation, and control pain.

Cellulitis is increasing worldwide health problems as the frequency and burden of health increases over time. In the United States, from 1997 to 2005, the annual outpatient visits to cellulite and abscesses emphasizes that most outpatient visits to cellulite and abscess increased from 4.6 million to 9.6 million, which greatly increased health use in this situation. From 1998 to 2006, cellulite or abscess created about 10%of all infectious diseases associated with staying in the hospital, further emphasizing clinical importance. Inpatient indicators continued to increase, the number of hospitals increased 73% in cellulite or abscesses, and increased from 12 in 1997 to 21 in 2011 [8].

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Although many cases are manageable in outpatient settings, moderate to severe infections often require hospitalization and intravenous antibiotic therapy, especially in older adults and individuals with comorbid conditions [6]. Misdiagnosis and recurrence are common and contribute to increased healthcare costs and morbidity. A comprehensive understanding of risk factors, complications, and proper management is essential to reduce recurrence and improve patient outcomes. Therefore, the objective of this research was to investigate the incidence, risk stratification and treatment protocol of cellulitis among patients admitted in the district general hospital in India.

II. MATERIALS AND METHODS

A. Study Design

The present study was an observational prospective, cross-sectional and conducted at the surgery ward of the district general hospital, Maharashtra, for a period of 6 months from October 2024 to March 2025 with ethical approval (EC/9/2024). Informed consent was obtained from all participants. Confidentiality was maintained, and data were used solely for academic and research purposes.

B. Population and Samples

The study period was six months, during which data were collected from patients who were newly diagnosed or admitted with cellulitis. The hospital's role as a referral center made it an ideal site for assessing diverse cases and treatment approaches. Cellulitis in patients admitted to the surgery department, the any age group, either sex was recruited. A written informed consent form was obtained in local language before the participation of subjects from the patient in the study. The patient was informed about the purpose of the study, and the confidentiality of the data was maintained successfully.

C. Inclusion Criteria

- Patients with a clinical and confirmed diagnosis of cellulitis based on signs and symptoms.
- Patients willing to provide consent to participate in the study.
- Patients who had been experiencing cellulitis symptoms for at least 48 hours before admission.

D. Exclusion Criteria

- Those patients refused or were unable to provide consent.
- Patients with poor adherence to medication or incomplete medical records, which could compromise data accuracy.

E. Data Collection

Data pertaining to the patients involved in the study has been collected from treatment charts and case sheets, physical examinations, developmental assessment findings, and interviews conducted with the patient from the surgical ward. A total of 120 patients who met the inclusion criteria were admitted with cellulitis during the study period. A total of 1,329 patients were screened in the surgery department, among which 113 were newly diagnosed with cellulitis.

Data were collected using a pre-designed and validated questionnaire, which was structured in the form of a Google Form. The questionnaire included both open-ended and multiple-choice questions to gather;

- Demographic data (age, gender, residence, occupation)-
- Medical and social history (comorbidities, lifestyle habits)-
- Clinical data (type of cellulitis, site and severity, cause of injury)-
- Treatment details (antibiotics, surgical interventions, dressings) Patients were interviewed after obtaining consent and additional information was retrieved from case papers and hospital records.

F. Data Management and Analysis

Data obtained were organized and analyzed using Microsoft Excel and interpreted using descriptive and inferential statistics. Key methods included chi-square test and correlation analysis.

III. RESULTS AND DISCUSSION

The current study provides critical insight into the epidemiology, risk factors, and clinical management of cellulitis among patients attending District General Hospital (DGH) Amravati. A prospective design allowed for real-time data collection during the patients' hospital stay, ensuring accuracy and relevance. The cross-sectional aspect of the study enabled a snapshot of the cellulitis burden during a fixed time frame, providing insights into its clinical and epidemiological characteristics.

A total of 1329 patients were attended to surgery department, a total of 120 patients were diagnosed with cellulitis and admitted to the surgery ward, which had been enrolled in this study. The observed prevalence rate of 90.3 per 1,000 individuals highlights the substantial burden of this disease on the local population. The condition was more prevalent among males, with a prevalence of approximately 102.7 cases per 1,000 males, compared to 67.8 cases per 1,000 females. In the total population of 1,329 individuals, the overall incidence of cellulitis was 8.50%, based on 113 newly reported cases. When broken down by sex, the incidence was higher among males than females. Specifically, males had an incidence of 9.80% (84 new cases out of 857), equivalent to 98.0 new cases per 1,000 males, while females had an incidence of 6.14% (29 new cases out of 472), and equivalent to 61.4 new cases per 1,000 females. These findings suggest that new cases occurred more frequently among males compared to females during the study period. Notably, the prevalence was significantly higher in males (102.7 per 1,000) compared to females (67.8 per 1,000), reflecting a gender disparity that has been reported in previous studies. Swartz (2004) noted that men are more likely to participate in activities that expose them to minor skin trauma, which increases their risk of cellulitis. This finding emphasizes the importance of understanding the underlying reasons for such disparities, particularly in the context of healthcare strategies and disease prevention [9].

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A. Socio-Demographic Characteristic

In terms of patients age distribution, among population of 120 individuals across different age groups with percentages was observed that females account for 32 (26.7%), while males constitute 88 (73.3%). The age-related distribution of study subjects is illustrated in Table 1. There is a significant male majority in the age group 26-40 (25.0% male, 6.7% female), while the 41-55 age group also reflects male dominance with 21.7% males and 8.3% females. Males dominate all age groups, with the 26-40 age range having the highest proportion (31.7%). Approximately 61.7% of the population was in the 26-40 and 41-55 age groups. Based on this data, it seems that cellulitis is more prevalent in males in these age groups.

The age distribution revealed that cellulitis predominantly affected males in the 26–40 age range and females in the 41–55 age range. Smith and Skelton (1998) found that middle-aged individuals are more vulnerable due to a combination of cumulative environmental exposure and age-related immune changes that heighten their susceptibility to infections. These demographic patterns highlight the need for targeted health education and tailored preventive strategies that address the unique needs of these vulnerable groups, such as promoting wound care and hygiene practices among young adults and middle-aged individuals [10]. The difference in gender may be connected to higher exposure to work-related risks, injuries, or other lifestyle factors that are more common in males. Simonsen et al. (2005) found similar result indicating a higher risk of cellulitis in males, an increase with age [11]. While talking about statistical insights into the age distribution of patients affected by cellulitis. The estimated mean age of affected females is 51.2 years, with the most affected age group being 41–55 years. For males, the mean age is slightly lower at 46.6 years, and the most affected age group is 26–40 years. The least affected age group is 18–25 years, with an overall mean age of 47.85 years and a median age of 48.5 years, primarily within the 41–55 years range. The standard deviation is 27.5, indicating relatively wide spread in the age of affected individuals

The residence-wise distribution of a population across different age groups was for urban and rural (Table 1). The population is mainly rural, with 95 individuals (79.2%) living in rural areas compared to 25 individuals (20.8%) in urban areas. The most significant concentrations among the rural population are observed in the age groups 41-55 (25.8%) and 26-40 (24.2%). The 26-40 and 41-55 age groups together account for 50% of the population. An intriguing and significant finding was the high prevalence of cellulitis among rural residents (79.2%). Similar trends have been observed by Kumar et al. (2015), who attributed the increased incidence in rural settings to factors such as limited access to healthcare, lower awareness of the need for early medical intervention, and higher exposure to unsanitary conditions. This finding underscores the pressing need for improvement in rural healthcare infrastructure, as well as for increased community outreach programs that focus on awareness and early treatment of cellulitis to mitigate its impact [12].

The percentage distribution of occupations across various age groups, divided into daily wage workers, farmers, and others (include housewife, transport, remote worker and makers) along with a grand total for each category and the overall population. The 26-40 age group has the highest employment rate at 31.7%, with the most diverse occupational distribution (13.3% daily wage workers, 5.8% farmers, 12.5% others).

Table 1 Socio-Demographic Distribution and Baseline Characteristics Among Participants (n=120)

Characteristic N (%)	Gender/Age Groups	18-25	26-40	41-55	56-65	>65	Total
Age group	Female	-	8 (6.7)	10 (8.3)	6 (5.0)	5 (4.2)	32 (26.7)
	Male	4 (3.3)	30 (25.0)	26 (21.7)	19 (15.8)	9 (7.5)	88 (73.3)
	Grand total	4 (3.3)	38 (31.7)	36 (30.0)	28 (23.3)	14 (11.7)	120 (100.0)
Residence	Rural	0	29 (24.2)	31(25.8)	25 (20.8)	10 (8.3)	95 (79.2)
	Urban	4 (3.3)	9 (7.5)	5(4.2)	3 (2.5)	4 (3.3)	25 (20.8)
	Grand total	4 (3.3)	38 (31.7)	36(30.0)	28 (23.3)	14 (11.7)	120 (100.0)
Occupation	Daily wage worker	2 (1.7)	16 (13.3)	13(10.8)	11 (9.2)	-	42 (35.0)
	Farmer	2 (1.7)	7 (5.8)	12(10.0)	7 (5.8)	4 (3.3)	32 (26.7)
	Others	-	15 (12.5)	11(9.2)	10 (8.3)	10 (8.3)	46 (38.3)
	Grand total	4 (3.3)	38 (31.7)	36(30.0)	28 (23.3)	14 (11.7)	120 (100.0)

Daily wage workers were peak at 13.3% in the 26-40 age range, while farmers were most common (10.0%) in the 41-55 group. The overall distribution shows 35% daily wage workers, 26.7% farmers, and 38.3% others. The overall prevalence of cellulitis was found to be in daily wage worker followed by farmer and other which contains housewives (12), maker (25), and remote worker (4) and transport related worker (5). Occupational risk factors also emerged as significant contributors to cellulitis risk, particularly among daily wage laborers in the 26–40 age groups. Lee et al. (2013) highlighted the elevated risk faced by individuals engaged in manual labor, particularly due to frequent skin injuries and the lack of protective measures in such occupations. This suggests that workplace safety protocols should be strengthened, and routine skin inspections should be integrated into high-risk occupations to prevent the onset of cellulitis [13].

The distribution of social history habits among a total of 120 individuals, categorized by gender (32 females, 88 males). Most common habit was tobacco use (25.8%), with males (15.0%) slightly more than females (10.8%). Smoking was exclusive to males (5.8%). Alcohol use was more prevalent among males (5.0%) than among females (0.8%). No women report both alcohol and smoking, versus 4 men (3.3%). The

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combination of tobacco, alcohol, and smoking was seen only in males (14.2%). No gender reports tobacco, alcohol, and IV drug use together. About 25.8% (31 individuals) report no social history habits. The lifestyle habits of patients in this cohort also played a role in disease patterns. Tobacco use was identified as the most prevalent risk factor, followed by alcohol and smoking, affecting 25.8% of patients. These findings align with the research conducted by Patel et al. (2017), which indicated that smoking, alcohol consumption, and tobacco use adversely affect immune function and hinder wound healing, consequently exacerbating the severity of infections such as cellulitis. The association of these habits exclusively with male patients further suggests that gendered lifestyle factors might contribute to the observed disparity in cellulitis incidence, which could be addressed through targeted behavioral interventions aimed at reducing tobacco and alcohol consumption in this demographic [14].

B. Comorbidities and Past Medical History

Each patient diagnosed with cellulitis was evaluated for the presence or absence of risk factors, and the results were presented in Table 2. The analysis of past medical history in 120 cellulitis patients reveals that the majority 22.5% had both diabetes mellitus (DM) and hypertension, while 14.17% had only DM. Less common conditions included heart failure (5%), DM with eczema (0.83%), eczema alone (0.83%), and a combination of hypertension with heart failure (1.67%). The high prevalence of diabetes mellitus supports the known pathophysiological association between hyperglycemia and impaired wound healing, reduced immunity, and increased susceptibility to infection. Patients with prior episodes of cellulitis or underlying vascular disease were also at increased risk, suggesting recurrence and poor circulation as key factors.

- *Cause of Injury*

Table 2 shows the distribution of cause of injury a total of 120 cases categorized into four groups: Accidental, Bite, Skin Infection and Unknown. This indicates that the majority of cases are either of unknown origin or accidental, with bites and skin infections being less common. The highest incidence is in the left leg (43 cases), followed by the right leg (32 cases), while both hands and umbilical cellulitis have the lowest incidences. This suggests a predominance of cases in the lower limbs. In accordance with global trends, the study identified the lower limbs, particularly the left leg, as the most commonly affected site. Raff and Kroshinsky (2016) reported similar findings, noting that the lower extremities are particularly vulnerable to cellulitis due to their exposure to minor injuries and compromised lymphatic drainage, which increases the risk of infection. These findings highlight the importance of preventive measures, such as the use of protective footwear and better hygiene practices, especially among individuals who work outdoors or engage in activities that put them at higher risk for leg injuries [8]. The Table 2 represents the total number of cases of cellulitis categorized by severity (Mild, Moderate, Severe) and type (Non-purulent and Purulent).Overall, non-purulent cellulitis dominates in mild and moderate categories, while purulent cellulitis becomes more prominent in severe cases.

C. Purulent and Non-Purulent Cellulitis Treatment According to Severity

Table 3 illustrates the treatment distribution for purulent cellulitis based on severity- mild, moderate, and severe. The mild cases, incision and drainage (I & D) and cefotaxime were the most common treatments, each with 8 cases, followed by metronidazole (2 cases) and MgSO4 Dressing (1 case), with no amputations or other treatments. In moderate cellulitis, the highest counts were for MgSO4 Dressing (28 cases), I & D (27 cases), and cefotaxime (25 cases), indicating a strong preference for these methods. Metronidazole was used in 13 cases, with 2 cases categorized as "Others" which included Tazar, Piptaz, and Linezolide and no amputations reported. Severe cellulitis showed a reduction in conservative treatments: I & D (8 cases), cefotaxime (7 cases), MgSO4 Dressing (3 cases), and Metronidazole (2 cases). Notably, 4 cases required amputation, indicating its necessity in advanced infections, while 1 case fell into the "Others" category. The treatment patterns for non-purulent cellulitis, categorized into mild, moderate, and severe cases (Table 3). The table 3 shows that in mild cases, MgSO4 Dressing was the most common treatment (35 cases), followed by cefotaxime (29 cases), amoxclav (19 cases), and clindamycin (1 case), with no cases in the "Others" category. For moderate cellulitis, MgSO4 Dressing remained the most used treatment (30 cases), followed by cefotaxime (26 cases) and amoxclav (1 case). There were no cases treated with Clindamycin, while 5 cases were listed under "Others." In severe cellulitis, there were no cases treated with amoxclav, cefotaxime, MgSO4 Dressing, or Clindamycin; only 5 cases were included under "Others." The bar chart visually confirms these trends, highlighting the peak use of MgSO4 dressing and cefotaxime in mild and moderate cases, with a marked drop in treatment numbers for severe cases. The "Others" category appears only in moderate and severe cases, with 5 cases each. Overall, the results indicate that mild and moderate non-purulent cellulitis are treated predominantly with MgSO4 dressing and cefotaxime, while severe cases shift away from standard treatments, relying entirely on alternative or unspecified methods. This shows a trend of reduced conventional treatment in more severe cases.

Regarding treatment strategies, the study followed current best practices, with incision and drainage being performed for purulent cases, while magnesium sulfate dressings were used in non-purulent cases. Additionally, advanced antibiotics were administered for severe cases. This approach is consistent with the guidelines outlined by Jones et al. (2012), who emphasized the importance of timely surgical intervention combined with appropriate antibiotic therapy to improve outcomes in cellulitis cases. However, it is noteworthy that a few severe cases necessitated amputation, highlighting the potentially life-altering consequences of delayed or inadequate treatment [15].

D. Correlation Analysis and Association between Severity of Condition and Symptom Onset

The correlation analysis was conducted to explore the relationship between treatment outcomes and various factors, including disease severity, past medical history, and social habits, among patients diagnosed with cellulitis. A moderate negative correlation (r^2=-0.4) between treatment outcomes and disease severity suggests that more severe cellulitis reduces

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the likelihood of favorable treatment outcome decrease. In other words, patients with more severe disease presentations tend to have poorer recovery or prolonged treatment durations.

Regarding past medical history, a weak negative correlation was found with diabetes mellitus (r^2=-0.2371) and hypertension (r^2=-0.40904).

Table 2 Comorbidities and Past Medical History Distribution Among Participants (n=120)

Characteristic	Gender	Female	Male	Grand total
Social history	Alcohol	1 (0.8)	6 (5.0)	7 (5.8)
	Alcohol, Smoking	-	4 (3.3)	4 (3.3)
	None	15 (12.5)	16 (13.3)	31 (25.8)
	Smoking	0	7 (5.8)	7 (5.8)
	Tobacco	13 (10.8)	18 (15.0)	31 (25.8)
	Tobacco, Alcohol	1 (0.8)	7 (5.8)	8 (6.7)
	Tobacco, Alcohol, IV drug use	-	1 (0.8)	1 (0.8)
	Tobacco, Alcohol, Smoking	-	17 (14.2)	17 (14.2)
	Tobacco, Smoking	2 (1.7)	12 (10.0)	14 (11.7)
	Grand Total	32 (26.7)	88 (73.3)	120 (100.0)
Medical wise distribution	**Co-morbidity**	**Number**	**Percentage**	**-**
	DM	17	14.17	-
	DM, Eczema	1	0.83	-
	DM, Hypertension	27	22.5	-
	Eczema	6	5	-
	Heart failure	1	0.83	-
	Hypertension	18	15	-
	Hypertension, Heart failure	2	1.67	-
	None	46	38.33	-
	Psoriasis	2	1.67	-
	Grand Total	120	100	-
Site of infection	**Site**	**Number**	**Percentage**	**-**
	Both hands	1	0.83	-
	Both leg	9	7.5	-
	Left hand	23	19.17	-
	Left leg	43	35.83	-
	Right Hand	11	9.17	-
	Right leg	32	26.67	-
	Umbilical cellulitis	1	0.83	-
	Grand Total	120	100	-
Type of cellulitis	**Cellulitis**	**Mild**	**Moderate**	**Severe**
	Purulent Cellulitis	6 (5%)	28 (23.33%)	9 (7.5%)
	Non Purulent Cellulitis	35 (29.17%)	37 (30.83%)	65 (4.17%)
	Grand Total	41 (34.16%)	65 (54.16%)	14 (11.66%)

Table 3 Purulent and Non-Purulent Cellulitis Treatment According to Severity Among Participants

Type	I & D	MgSO4	Cefotaxim	Metronidazole	Amputation	Amoxclav	Clindamycin	Others
Purulent Cellulitis								
Mild	8	1	8	2	-	-	-	-
Moderate	27	28	25	13	-	-	-	2
Severe	8	3	7	2	4	-	-	1
Non-Purulent Cellulitis								
Mild	-	35	29	-	-	19	1	0
Moderate	-	30	26	-	-	1	-	5
Severe	-	5	-	-	-	-	-	-
Treatment Protocol								
	Mild		Moderate			Severe		

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Purulent Cellulitis	IV antibiotics I & D	IV antibiotics Conservative therapy I & D	IV higher antibiotics Conservative therapy I & D
Non-Purulent Cellulitis	Oral & IV antibiotics Conservative therapy	Oral & IV antibiotics Conservative therapy	IV higher antibiotics Conservative therapy

These values indicate that while these comorbidities may not strongly influence treatment outcomes, their presence is associated with slightly worse prognoses. Heart failure also showed a weak negative correlation (r = -0.16614), suggesting a potential, though limited, impact on the effectiveness of cellulitis management. In contrast, eczema exhibited a very weak positive correlation (r=0.080091) with treatment outcomes, implying a negligible or slightly favorable influence. Psoriasis showed a weak negative correlation (r = -0.01087), In contrast, eczema exhibited a very weak positive correlation (r = 0.080091) with treatment outcomes, implying a negligible or slightly favorable influence. Moreover, the correlation between social history and treatment outcomes revealed a weak negative relationship (r = -0.3). This finding highlights that patients with habits such as smoking, alcohol consumption, or tobacco use tend to experience slightly poorer outcomes. These lifestyle factors may contribute to delayed healing or increased complications during treatment. Statistical analysis revealed a moderately negative correlation (-0.4) between disease severity and treatment outcomes, suggesting that more severe cases tend to have worse prognoses. Additionally, comorbid conditions such as hypertension and diabetes were shown to have weak negative correlations with treatment outcomes, aligning with the findings of Stevens et al. (2014), who noted that such comorbidities complicate infection control and delay recovery. These results underline the importance of managing underlying conditions in cellulitis patients to improve their recovery prospects [16].

A chi-square test was conducted to determine the association between the timing of symptom onset and the severity of cellulitis. Analysis yielded a chi-square value χ^2 = 25.1145 (df=8, p=0.001487). Since the p-value is significantly lower than the alpha level of 0.05, the result indicates a statistically significant association between symptom onset and the severity of the condition. This statistical significance suggests that the observed differences in severity are unlikely to have occurred by chance alone. Therefore, the null hypothesis stating that there is no association is rejected, and the alternative hypothesis is accepted. It implies that earlier or delayed symptom onset may influence how severe the condition becomes, possibly due to variations in immune response, delay in medical intervention, or other clinical factors. Finally, a significant association was observed between early presentation and lower disease severity (p = 0.0015), which is consistent with the findings of Ahmed et al. (2018). They reported that delays in seeking medical care significantly increase the risk of complications and poor outcomes in cellulitis patients. This finding reinforces the need for early detection campaigns and the establishment of rapid-access clinics to reduce the burden of cellulitis and prevent severe complications [17].

This study provides a foundation for understanding cellulitis patterns at DG hospital; however, future work should focus on expanding the study population to include multiple centers for broader applicability. Extending the study duration will allow assessment of seasonal trends and longer-term outcomes. Incorporating follow-up data is essential to evaluate recurrence rates and late complications. Additionally, future research should explore the effectiveness of targeted interventions, such as health education and workplace safety programs, particularly for high-risk groups identified in this study. Assessing the impact of early detection initiatives and improved access to rural healthcare services will also be valuable in reducing disease burden and complications. In conclusion, the timing of symptom onset plays a significant role in the progression and severity of cellulitis, and early recognition and intervention may contribute to improved clinical outcomes.

IV. CONCLUSION

Cellulitis predominantly affects males and individuals in rural areas, often associated with physical labor, tobacco use, and alcohol consumption. The lower limbs are the most commonly affected site. Early intervention and effective management of comorbidities are critical to improving outcomes. Strengthening rural healthcare, promoting hygiene, and enhancing workplace safety are essential to reduce cellulitis burden and complications.

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REFERENCES

[1]. Bjornsdottir S, Gottfredsson M, Thorisdottir AS, Gunnarsson GB, Ríkardsdottir H, Kristjansson M, Hilmarsdottir I. Risk factors for acute cellulitis of the lower limb: a prospective case-control study. Clinical infectious diseases. 2005 Nov 15;41(10):1416-22.

[2]. Deshpande SG, Grover A, Shahapurkar VV, Shinde RK. Limb cellulitis in rural setting in India: a case control study. International Surgery Journal. 2017 Jul 24;4(8):2751-5.

[3]. Mzabi A, Marrakchi W, Alaya Z, Fredj FB, Rezgui A, Bouajina E, Kechrid CL. Cellulitis in aged persons: a neglected infection in the literature. Pan African Medical Journal. 2017 Aug 8;27(1).

ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/25sep195

[4]. Chakravarthy DS, Gandeti KK, Subramanyam GS, Yeddula VJ, Gera A. Prospective study on sociodynamics of cellulitis in general surgical unit. Int J Res Med Sci. 2017; 8; 3:1052–5.
[5]. Mistry K, Sutherland M, Levell NJ. Lower limb cellulitis: low diagnostic accuracy and underdiagnosis of risk factors. Clinical and Experimental Dermatology. 2019 Jul 1;44(5):e193-5.
[6]. Tianyi FL, Mbanga CM, Danwang C, Agbor VN. Risk factors and complications of lower limb cellulitis in Africa: a systematic review. BMJ open. 2018 Jul 1;8(7):e021175.
[7]. Collazos J, de la Fuente B, García A, Gómez H, Menéndez C, Enríquez H, Sánchez P, Alonso M, López-Cruz I, Martín-Regidor M, Martínez-Alonso A. Cellulitis in adult patients: a large, multicenter, observational, prospective study of 606 episodes and analysis of the factors related to the response to treatment. PloS one. 2018 Sep 27;13(9):e0204036.
[8]. Raff AB, Kroshinsky D. Cellulitis: a review. Jama. 2016 Jul 19;316(3):325-37.
[9]. Swartz MN. Cellulitis. New England Journal of Medicine. 2004 Feb 26;350(9):904-12.
[10]. Smith R, Skelton J. Age-related risk factors in the development of cellulitis. Journal of Clinical Dermatology.1998; 43(2:, 185–190.
[11]. Simonsen SE, Van Orman ER, Hatch BE, Jones SS, Gren LH, Hegmann KT, Lyon JL. Cellulitis incidence in a defined population. Epidemiology & Infection. 2006 Apr;134(2):293-9.
[12]. Kumar A, Mishra S, Yadav R. Rural healthcare and cellulitis incidence: A study from India. International Journal of Rural Health. 2015;14(3): 120–124.
[13]. Lee H, Park S, Lee S. Occupational risks of cellulitis in manual laborers. Journal of Occupational Health,2013; 55(6): 487–492.
[14]. Patel S, Mahobia N. Cellulitis. [Updated 2023 Jul 24]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2024. Available from:https://www.ncbi.nlm.nih.gov/books/NBK549770/
[15]. Jones S, Miller C, Evans R. Surgical management and antibiotic therapy for cellulitis. Journal of Clinical Surgery.2012; 33(7): 522-529.
[16]. Stevens DL, Bisno AL, Chambers HF. Impact of comorbidities on cellulitis. The Lancet Infectious Diseases. 2014; 14(7): 681–686.
[17]. Baddour LM. Cellulitis and erysipelas. Uptodate. Waltham, MA: Uptodate. 2016. Retrieved April 2025, from https://www.uptodate.com