

Role of W.A.R. Score in Predicting Wound Infection

Ravi Kumar Chittoria^{1,*}, Vaibhav Shukla², Jacob Antony Chakiath³, Amrutha J.S.⁴

Abstract

In clinical practice, chronic wounds are a major difficulty that are frequently made worse by the infection risk. However, the lack of precise standards for evaluating the risk of infection and establishing the need for and length of time for systemic antibiotics leads to the overuse and abuse of these drugs, which increases the risk of side effects and the development of antibiotic resistance. To close this gap, the development of a simple tool like the W.A.R. (Wound, Appearance, and Redness) score could completely transform how doctors make decisions. Taking into consideration variables including wound appearance and redness, which are suggestive of infection risk, the W.A.R. score provides a methodical way to assess chronic wounds. This tool gives clinicians the authority to decide when to start and how long to continue antimicrobial therapy by offering a consistent framework. The W.A.R. score helps doctors to prevent unnecessary antibiotic use by accurately predicting infection risk and allowing timely intervention when needed. Wide-ranging advantages may arise from using the W.A.R. score in clinical practice. Physicians would be more qualified to recognise patients who are more vulnerable to infection, allowing for more focused therapies to avoid problems. Additionally, by encouraging the prudent use of antibiotics, the W.A.R. score supports initiatives to counteract antimicrobial resistance, a concern to world health. Because of its simplicity of use, clinical decision-making procedures are streamlined, which eventually improves patient outcomes and maximises resource utilisation. Furthermore, the W.A.R. score promotes consistency and comparability among various healthcare settings and providers by standardising assessment criteria. To sum up, the development of the W.A.R. score is a noteworthy step forward in the treatment of chronic wounds. The W.A.R. score has the ability to completely transform clinical practice by offering a useful instrument for determining infection risk and directing choices about antimicrobial therapy. This could lead to improvements in patient safety, antimicrobial stewardship, and chronic wound outcomes.

Keywords: W.A.R., Score, wound, prediction, Infection

INTRODUCTION

*Author for Correspondence

Ravi Kumar Chittoria

E-mail: drchittoria@yahoo.com

¹Senior Professor and Associate Dean, Department of Plastic Surgery and Telemedicine, JIPMER, Puducherry, India.

²Junior Resident, Department of General Surgery, JIPMER, Puducherry, India.

³Senior Resident, Department of Plastic Surgery, JIPMER, Puducherry, India.

⁴Senior Resident, Department of Plastic Surgery, JIPMER, Puducherry, India.

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Decreased quality of life, elevated morbidity [1] and mortality [2], and a marked rise in health care utilisation and expenses are all linked to chronic wounds [3]. Patients with chronic wounds are also more likely to receive systemic antibiotics than patients without chronic wounds, raising the possibility of multidrug-resistant bacteria organisms (MDROs) and other side effects the result is greater [4]. Clinicians face a challenging task in the management of chronic wounds as they must consider multiple factors including risk of infection and appropriate systemic antibiotic use around. Chronic wounds are prone to microbial colonisation and subsequent infection because of decreased tissue integrity and impaired immune response. These wounds are frequently the result

of illnesses such as diabetes, vascular insufficiency, or pressure traumas. As a result, early detection of infection risk is essential to avoid both the abuse of systemic antibiotics, which can worsen the condition of wounds, and their underuse, which can lead to the development of antimicrobial resistance. A major challenge for clinicians is that there are currently no universally acknowledged recommendations, despite the urgent need for clear guidance. The intricacy of wound care is increased by the absence of agreed-upon standards for identifying when a chronic wound is infected or susceptible to infection [5].

The difficulty is further compounded by variations in wound appearance, patient comorbidities, and microbial colonisation patterns. As a result, making decisions for healthcare practitioners is frequently ambiguous, which increases the chance of providing patients with subpar care. Moreover, the lack of clear standards for the appropriate indication and duration of systemic antibiotics contributes to the complexity of managing wounds. A fine line must be drawn by clinicians between minimising the hazards of antibiotic misuse, such as adverse medication responses and the emergence of multidrug-resistant bacteria, and providing effective antimicrobial therapy to battle infection. Clinicians may turn to empirical antibiotic therapy in the absence of clear advice, which could lead to poor antibiotic prescribing practices and the development of antimicrobial resistance [6].

The creation of evidence-based guidelines for determining the risk of infection in chronic wounds requires, first and foremost, the completion of thorough study. This means carrying out prospective investigations to clarify the microbiological and clinical elements linked to wound infection and to verify scoring systems or diagnostic instruments for infection risk evaluation. In order to fully utilise the knowledge of infectious disease doctors, wound care specialists, microbiologists, and other pertinent stakeholders in the production of guidelines, multidisciplinary collaboration is also necessary. Consensus on uniform diagnostic standards and treatment algorithms catered to various kinds of chronic wounds and patient populations can be achieved by combining different viewpoints and areas of knowledge. In order to equip healthcare professionals with the information and abilities required for evidence-based wound assessment and management, education and training programmes are also essential.

Initiatives for ongoing professional development ought to prioritise the concepts of antimicrobial stewardship, prudent prescription of antibiotics, and the incorporation of innovative diagnostic modalities into clinical practice, such as point-of-care microbiological testing and sophisticated imaging tools. Furthermore, by offering tools, infrastructure, and incentives to encourage adherence to best practices in wound care, healthcare organizations and legislators can significantly aid in the implementation of guidelines. Initiatives for quality improvement, audits, and feedback systems can all help to support continuous observation and enhancement of healthcare procedures. Conclusively, a major difficulty for healthcare practitioners is the lack of established protocols for evaluating the risk of infection in chronic wounds and deciding when to administer systemic antibiotics. Research, interdisciplinary cooperation, policy support, education, and other fronts of concentrated effort are needed to close this gap.

By fostering evidence-based practice and promoting antimicrobial stewardship principles, healthcare systems can enhance patient outcomes and mitigate the growing threat of antimicrobial resistance in the management of chronic wounds. Patient overprescribing and overuse of antibiotics can lead to multidrug-resistant organisms (MDROs) and adverse drug reactions (ADEs) in the community [7]. A technique called the Wounds at Risk (W.A.R.) score (Figure 1) is used to score various host factors that can raise the risk of infection in wounds, so enabling physicians to evaluate their patients' risk of infection. By using this straightforward technique, physicians may be better able to assess when and how to use systemic antibiotics, potentially resulting in a decrease in the amount of antibiotics used in this patient group. The intricacy and difficulties involved in wound assessment are highlighted by the lack of widely recognised diagnostic standards for chronically infected wounds. Despite the best efforts of respected medical groups such as the Infectious Diseases Society of

America (IDSA), the European Wound Management Association and the British Antimicrobial Chemotherapy Society, there is still no consensus on specific symptoms of the wound infection. These groups recognise that detecting infected chronic wounds can be challenging when depending just on conventional signs and symptoms such redness, warmth, purulence, swelling, and discomfort [6–8].

These symptoms are frequently linked to illness, but their existence does not always mean that an infection is present. Furthermore, because infections can present in a variety of ways, diagnosis can become even more challenging because certain illnesses may show no obvious symptoms at all. This problem is best shown by the IDSA's guidelines for identifying and managing diabetic foot infections. These guidelines state that systemic antibiotics should be used for both diagnosis and therapy if at least two classic symptoms are present [7]. The lack of empirical evidence to support the validity of these diagnostic criteria, as noted by the IDSA, means that they are essentially expert consensus-based rather than evidence-based.

RISK CLASS	RISK CONDITION	YES	Per Risk: 1 Point
1	Acquired immunosuppressive disease (eg. diabetes mellitus)		
	Acquired immune defect due to medical therapy such as cyclosporine, methotrexate, glucocorticoids, or antibodies		
	Solid tumor disease		
	Systemic hematological disease		
	Postsurgical wound healing disorder, which results in (unplanned) secondary healing		
	Problematic hygienic conditions related to social or occupational environment		
	Patient age >80 years		
	Young patient age (premature infants and infants)		
	Wounds persisting >1 year		
	Wound dimensions >10cm ²		
	Chronic wounds of any etiology having a depth of >1.5cm		
	Extended inpatient status >3 weeks		
			Per Risk: 2 Points
2	Severe acquired immune defects (eg. HIV infection)		
	Heavily contaminated acute wounds		
	Bite, stab, and gunshot wounds penetrating 1.5cm–3.0cm		
			Per Risk: 3 Points
3	Severe innate immunodeficiency (eg. Wiskott-Aldrich syndrome, DiGeorge syndrome, immunodeficiency after stem cell transplantation, AIDS, immunosuppressive therapy)		
	Traumatically contaminated wound after debridement		
	Wounds that have a direct connection to organs or functional structures (eg. joints) or which contain foreign material (eg. prosthesis)		
			Total Score:
WAR Score ≤3: Patient <i>not</i> at increased for wound infection; systemic antibiotics may NOT be indicated			
WAR score ≥4: Patient is at increased risk for wound infection; systemic antibiotics may be indicated			
WAR: Wounds at Risk for infection			

Figure 1. Parameters for Calculating W.A.R score [1].

This disparity between factual data and professional judgement highlights the pressing need for more reliable diagnostic techniques in wound care. Standardised diagnostic criteria that are grounded in thorough research and clinical evidence have the potential to improve diagnosis precision, optimise treatment choices, and reduce the hazards related to antibiotic overuse and abuse. Moreover, the deficiency of widely acknowledged diagnostic standards highlights the significance of tailored patient evaluation and professional discretion in the handling of persistent wounds. To make an informed decision on diagnosis and treatment, clinicians need to take into account a number of aspects, such as the patient's medical history, the characteristics of the wound, and the patient's response to treatment. In conclusion, the limitations of conventional signs and symptoms highlight the necessity for a more complex and evidence-based method of detecting infected chronic wounds, even though they offer

insightful clinical information. Addressing this knowledge gap and enhancing patient outcomes in wound care requires coordinated efforts from researchers, policymakers, and healthcare practitioners [8]. This study highlights the role of W.A.R. score in predicting wound infection and whether antimicrobial therapy is required or not in case of chronic wounds.

MATERIALS AND METHODS

This study was carried out with the approval of the Scientific Ethics Board of Department of Tertiary Hospital, South India. All present, including the patient, gave written consent. Figure 2 shows the W.A.R. Score 6 for right trochanter pressure sore at the time of admission. Because the W.A.R. The score was above 3, and appropriate antibiotics were started.



Figure 2. Right trochanteric pressure ulcer with W.A.R. Score 6 at admission.

Results

Appropriate antimicrobial treatment was initiated as W.A.R. The score was 6, up from 3. So the W.A.R. score can help us start antibiotics once we are admitted to the hospital.

When antibiotics were started on schedule, wound healing improved (Figure 3).



Figure 3. Wound after initiation of antimicrobial therapy.

When it came to deciding whether or not to start antibiotic therapy, we realized that W.A.R. contributed significantly to all outcomes recorded at the time of admission.

DISCUSSION

W.A.R. score emphasizes the importance of counting all patients taking into account wound chronicity, age, social status, immune status, and other general factors in addition to wound appearance and delivery indicate that Scores can help inform decisions about initiating and continuing antibiotics for chronic wounds. A local MDRO is an example of an adverse event (ADE) that may be uncommon due to antibiotic use. There is currently insufficient guidance to assist clinicians in making these decisions. The W.A.R. score can also serve to highlight the reality that all wounds are contaminated and that most chronic wounds do not respond well to systemic antibiotic usage, even in cases when the wound is highly colonised. Local antiseptics and intensive wound care are beneficial for the majority of chronic wounds [7,9,10].

When it comes to assessing infection risk and determining whether antibiotics are needed, W.A.R. Scores are an invaluable tool for clinicians.

CONCLUSION

To determine whether to initiate antibiotics once and predict wound infection at admission, we found that the W.A.R. The victory helped me.

Because only individual cases were included in our study, larger, randomized, double-blind trials are needed to validate our findings.

Conflicts of Interest

None

Financial disclosure

None

Declarations

None

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