MRSA: risk assessment and flexible management


Summary

MRSA is an increasing problem in hospitals, particularly among older patients. The author discusses prevention of cross-infection, with an emphasis on the importance of risk assessment and good infection control procedures, rather than the routine isolation of infected patients.

This ARTICLE argues against the thinking of nurses who still believe in single room containment of every patient affected by methicillin-resistant Staphylococcus aureus (MRSA), despite published evidence to the contrary (Ayliffe et al 2000, Barrett et al 1998). In the light of limited resources, consideration of other single room priorities and the shortage of staff, the author asserts that a rational policy should be based on risk assessment and flexible management. Staphylococcus aureus is a gram-positive coccus, which is present on the skin of approximately 30 per cent of the population (Gould 1995). It is a commensal, generally found in warm and moist parts of the body, such as the nose, throat, groin and axillae. Most patients affected by MRSA are colonised by the bacterium. Colonisation means that the organism lives on specific sites of the body without causing any harm. However, if transferred to an abnormal site, it might cause a wide spectrum of conditions such as boils, carbuncles, wound infections and even life-threatening diseases, for example, endocarditis, osteomyelitis and septicaemia. Since the early 1960s, some strains of Staphylococcus aureus have developed resistance to many commonly used antibiotics, including methicillin and flucloxacillin, which are used to treat infections caused by this organism. This resistance problem poses serious challenges to clinicians, should a patient require treatment.

The effects of MRSA on the patient include extended length of stay in hospital, loss of earnings, pain, scarring, anxiety, depression, loss of self-esteem, stigma, reduced quality of life and morbidity. Implications for the hospital include disruption to routine activity, temporary ward closures, increased staff workload, long waiting lists and extra costs for identification and treatment of MRSA, including possible community care costs.

MRSA is now endemic in many UK hospitals. The number of people acquiring MRSA infections while in hospital is increasing (Cookson 1997). The demographic changes relating to the ageing population in western countries are likely to mean that the incidence of MRSA will continue to increase. The longer people live, the more likely they are to develop infections due to less effective barrier mechanisms to infection. Older people tend to spend longer periods in hospital, increasing their risk of exposure to MRSA. Meanwhile, the controversy about how best to deal with MRSA continues. Barrett et al (1998) dismissed attempts to control MRSA as disruptive and resource consuming. In contrast, the Joint Working Party of the Hospital Infection Society, the British Society of Antimicrobial Chemotherapy and the Infection Control Nurses Association (Duckworth et al 1998) believes that the control of MRSA is still worthwhile. It argues that control measures do have an impact, and that the costs of ignoring MRSA are higher than those of control. However, the Working Party acknowledges the difficulties faced by infection control personnel in trying to control MRSA and recommends a more flexible approach based on risk assessment.

Prevention

Despite the national guidelines recommendation of a flexible approach, some nurses still insist that all patients affected by MRSA should be isolated in a single room. In the meantime, the number of patients affected by MRSA continues to rise, and cases exceed the number of single rooms available. Inevitably, this situation presents difficulties for infection control teams (ICTs). Furthermore, other priorities for single room usage, such as accommodating terminally ill or noisy patients, are compromised. Although MRSA is a key indicator for infection control interventions, it could be argued that the emphasis placed on it is sometimes imprudent. For example, some healthcare workers lose sight of preventing infections caused by micro-organisms other than MRSA. It is not uncommon for patients with profuse diarrhoea to be nursed in an open ward while a patient only lightly colonised with MRSA is occupying a single room.

Although isolation in a single room is an important tool in preventing cross-infection, nurses need to consider why they make their decisions and question their actions when caring for patients with...
MRSA. In this continually changing health service, caring for patients in a ritualistic way can no longer be justified. Nurses should, therefore, use evidence-based approaches to ensure the provision of best quality care. Furthermore, they must take an active role in making decisions by using knowledge and problem-solving skills.

Placement of patients affected by MRSA should be undertaken following a risk assessment based on the knowledge of source of the micro-organism, route of transmission and risk factors (Parker 1999). An understanding of MRSA risk factors is important in helping to prevent its spread. These risks should be assessed on the basis of sound evidence and knowledge and ‘not through passive acceptance or some other driving force, such as attempts to save money’ (Ayliffe et al 1999). In essence, staff should be aware that MRSA susceptibility is linked to: previous antibiotic therapy; underlying medical problems; surgery; immune state of the individual; invasive procedures and devices; and multiple hospital admissions (Humphreys and Duckworth 1997).

Risk assessment

A risk assessment tool that classifies MRSA cases into low, moderate and high-risk categories has been recommended by the ICT in the author’s trust hospitals (Table 1). This tool can guide nurses when making decisions relating to patient allocation to single rooms. It should be part of total care to assess the risk of each individual patient. Griffiths-Jones (1999) warns against isolating a patient for no other reason than because he or she has MRSA. As she points out, to say that a patient is placed in isolation to prevent the transmission of infection fails to acknowledge that the decision should be based on risk assessment. Assessment of the whole person is essential to identify factors that might influence the outcome of management. Although the psychological impact of isolation is not fully understood, it cannot be ignored. Feelings of confinement, depression, anger, anxiety and lack of control have been expressed by some patients nursed in isolation (Parker 1999). That is why a good policy for MRSA should encompass the principles of holism and not ignore other patients’ needs. The patient is the central focus. Such an approach will benefit nurses by reducing their workload as they might no longer need to barrier-nurse low-risk patients.

A policy that reduces the risk of MRSA cross-infection and simultaneously enables patients to continue with other aspects of their care seems more sensible. After all, meeting challenges that

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<th>Category</th>
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<td><strong>1. Low risk</strong>&lt;br&gt;a. Nose only colonised <strong>and/or</strong>&lt;br&gt;b. One superficial wound, healing and covered <strong>or</strong>&lt;br&gt;c. At least one full negative screen obtained</td>
<td>Bay with patients who have no wounds or catheters&lt;br&gt;Bay with patients who have no wounds or catheters might be acceptable&lt;br&gt;Bay with patients who have no wounds or catheters might be acceptable</td>
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<td><strong>2. Moderate risk</strong>&lt;br&gt;a. Nose, throat and groin colonised <strong>and/or</strong>&lt;br&gt;b. 1-2 superficial wounds, covered <strong>and</strong>&lt;br&gt;c. Patient able to be confined to bed area</td>
<td>Single room preferable&lt;br&gt;Bay with patients who have no wounds or catheters might be acceptable&lt;br&gt;Bay with patients who have no wounds or catheters might be acceptable</td>
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<td><strong>3. High risk</strong>&lt;br&gt;a. Deep wounds <strong>or</strong>&lt;br&gt;b. Multiple wounds/pressure ulcers <strong>or</strong>&lt;br&gt;c. Positive urine and catheter in situ <strong>or</strong>&lt;br&gt;d. Patient difficult to confine to bed area</td>
<td>Single room&lt;br&gt;Single room&lt;br&gt;Single room&lt;br&gt;Single room</td>
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Table 1. Source isolation containment risk assessment tool developed by infection control team, Basildon and Thurrock General Hospitals NHS Trust
lie ahead requires realistic goals, openness and an effort to understand the needs of individual patients.

The aim of isolation must be to confine the organism and block its spread, which does not necessarily mean isolation of the whole person (Ayliffe et al 1999). Policies might have little impact on the prevention of MRSA spread unless staff fully understand and comply with them. Thus, provision of up-to-date information relating to MRSA, patient isolation and risk assessment, will enable all healthcare workers to base their practice on knowledge and evidence.

Infection control

MRSA is mostly spread by contact with colonised hands of healthcare workers (Ayliffe et al 2000). With this in mind, prevention efforts should concentrate on basic infection control precautions, such as handwashing, decontamination of healthcare equipment, safe food handling and proper waste and laundry management. Moreover, such measures are based on the national guidelines for the control of MRSA in hospitals (Box 1). Ultimately, it is not always necessary to isolate all patients with MRSA in single rooms. However, the role of the environment as a source of MRSA and its spread through the air is not fully understood (Ayliffe et al 1999). This is an area for further research.

Conclusion

In conclusion, perhaps a more rational and realistic approach is to accept that MRSA is now endemic in most NHS trust hospitals. Given the existing MRSA risk factors, it would seem naive to believe that MRSA will be totally eradicated. Hence, an evidence-based flexible policy that incorporates risk assessment appears to be the way forward in managing MRSA now and in the future. As long as effective basic infection control standards are in place and staff, patients and visitors comply, it is appropriate to nurse some of these patients in an ordinary bay.

For example, patients who are only colonised in the nose, throat and groin might be nursed in a bay occupied by patients without indwelling catheters or wounds. Similarly, it should not be necessary to isolate a person with a wound if other patients have no damaged skin or invasive devices.

Continual education programmes on handwashing, asepsis, general hygiene and universal precautions can help staff to practise safely. Good infection control practice should be undertaken with all patients, whether or not they have MRSA. It is also vital to evaluate MRSA management procedures to determine their effectiveness and staff compliance. This can be undertaken using audit. Subsequent periodic review of the policy is necessary in the light of new knowledge and changing research evidence.

Box 1. Basic infection control measures

- Correct handwashing technique with soap and water, and disinfection with alcohol hand preparation, before and after procedures
- Use of disposable gloves and aprons for contact with body fluids, lesions and contaminated materials (wash hands after glove removal)
- Immediate clearance of blood and body fluid spillages according to local policy
- High standards of aseptic technique
- High standards of ward cleaning
- Segregation of all waste, careful handling of clinical waste (including sharps) and its transport in correct colour-coded sealed bags
- Careful handling of used linen and transport in correct colour-coded sealed laundry bags
- Safe handling of food
- Cover skin lesions and cuts with a waterproof dressing; staff with eczema or dermatitis should seek advice from the occupational health department
- Rational use of antibiotics
- Avoid overcrowding of patients
- Minimise intra- and inter-ward transfers of patients
- Maintain adequate staffing levels and appropriate skill mix

REFERENCES