REDUCING ANTIBIOTIC USE IN THE FIGHT AGAINST MRSA

A new campaign aims to help combat antibiotic resistance by educating healthcare professionals and patients about the appropriate use of the drugs. Nerys Hairon reports

THE GOVERNMENT launched a national campaign last week to remind healthcare professionals about the problem of antibiotic resistance, and to make clear to patients that antibiotics will not cure the common cold (Department of Health, 2008a).

Resistance to antibiotics is still increasing, and action is necessary to preserve the efficacy of existing antibiotics. As many patients visit GPs complaining of colds, coughs and sore throats in the winter, practice nurses are vital in reinforcing patient education on appropriate use of antibiotics and the consequences of unnecessary use. This is vital in the fight against MRSA.

THE CAMPAIGN
The DH initiative comes almost a decade after the original public education campaign to discourage overuse of antibiotics. The chief medical officer, Sir Liam Donaldson, warns that antibiotic resistance is increasing and in recent years fewer new antibiotics have been discovered (DH, 2008a). He adds that patients can take other remedies to relieve cough and cold symptoms, and pharmacists are well placed to give advice.

Adverts will appear in national newspapers and magazines, and posters and leaflets will be placed in GP surgeries and pharmacies. Copies of the posters and leaflets can be found at www.dh.gov.uk/antibiotics. A leaflet ‘Get Well Soon – Without Antibiotics’ explains to patients how to treat common colds, the prudent use of antibiotics and antibiotic resistance (DH, 2008b).

The DH (2008a) explains the mechanism of antibiotic resistance, adding that the more an antibiotic is used, the more likely it is that bacteria will develop resistance. It emphasises that if patients are prescribed antibiotics, they should not stop taking them when symptoms fade. The drugs should be taken as prescribed and the course finished – unless a doctor or pharmacist advises otherwise, as resistance is more likely to develop if antibiotics are not taken regularly or taken in too low a dose.

ANTIMICROBIAL RESISTANCE
Antimicrobial resistance is the ability of a micro-organism to resist the action of antimicrobial drugs. In a few instances some micro-organisms are naturally resistant to particular antimicrobial agents, but a more common problem is when micro-organisms that are normally susceptible to the action of particular agents become resistant. This often arises as a result of changes in the micro-organism’s genes. Resistant micro-organisms may spread and it seems likely that extensive use of antimicrobial agents helps this process along by eliminating competing susceptible micro-organisms (Health Protection Agency, 2008a).

MRSA
Staphylococcus aureus (SA) is a common coloniser of human skin and mucosa. Many people carry the bacterium on the surface of the skin or in the nose without developing an infection, but if bacteria enter the body through a break in the skin, they can cause infections such as boils, abscesses or impetigo. If they enter the bloodstream (bacteraemia) they can affect almost any part of the body and cause a range of more serious infections including septicaemia, septic shock and pneumonia.

Most SA infections can be treated with antibiotics such as methicillin (a type of penicillin). However, the bacterium is becoming increasingly resistant to most commonly used antibiotics. MRSA bacteria
are SA bacteria that are resistant to methicillin (and usually to some of the other antibiotics normally used to treat SA infection).

MRSA infection may require a much higher dose of antibiotics over a longer period, or the use of an antibiotic to which the bacteria are not resistant.

The number of antibiotic-resistant bacteria has increased in recent years due to:
- People not finishing the full course of antibiotics prescribed, which allows some bacteria to survive, develop a resistance to the antibiotic, and then multiply;
- The overuse of antibiotics, which has allowed bacteria to develop resistance to a wide range of antibiotics.

MRSA bacteria are usually spread through person-to-person contact with someone who has an MRSA infection, or who is colonised by the bacteria. They can also spread through contact with towels, sheets, clothes, dressings or other objects that have been used by someone with MRSA. The bacteria can also survive on objects or surfaces such as door handles, sinks, floors and cleaning equipment.

MRSA infections are most common in people who are in hospital, because they often have an entry point for the bacteria to get into the body. For an outline of people most at risk of the infection, see box below.

The latest figures on MRSA bloodstream infections show an 18% decrease over two quarters in England last year – down from 1,304 reports in April–June 2007 to 1,072 in July–September (HPA, 2008b). The six-monthly rate of MRSA bloodstream infection shows a 21% decrease, down from 1.57 cases per 10,000 bed days in October 2006–March 2007 to 1.24 cases per 10,000 bed days in April–September 2007.

Another report from the HPA found that resistance to ciprofloxacin and erythromycin were noted more commonly in MRSA than in methicillin-susceptible Staphylococcus aureus (MSSA) (HPA, 2007). This reflects the persistence of epidemic MRSA strains EMRSA-15 and EMRSA-16, which are commonly resistant to these agents.

ACTION FOR NURSES
While HPA figures show the rate of MRSA bloodstream infections continues to decline, the government warns that resistance to antibiotics is still on the increase. A study published in the British Medical Journal last year found that regular prescribing of antibiotics to children in the community was sufficient to sustain a high level of antibiotic resistance in the population (Chung et al, 2007). The authors concluded that cutting resistance rates would require substantial and sustained changes in antibiotic prescribing in the community.

Nurses can help to reduce antibiotic use by improving patient education on appropriate use, warning about the consequences of overuse and managing patient expectations on prescribing.

Practice nurses can refer to the DH leaflet published as part of the education campaign to give patients advice (DH, 2008b). Patients should be advised that the best way to treat most colds, coughs or sore throats is to drink plenty of fluids and rest. There are many over-the-counter remedies to ease symptoms, such as paracetamol. Patients can ask pharmacists for advice on OTC remedies.

The DH advises patients to see a doctor if:
- A cough lasts more than three weeks;
- Shortness of breath or chest pains develop;
- They already have a chest complaint.

If parents are concerned about persisting symptoms in children, they should see their GP but should be advised that they should not necessarily expect to be prescribed antibiotics. In addition, nurses should use the resources in the DH campaign to educate patients about antibiotic use and resistance.

To prevent the spread of MRSA, nurses working in acute care should maintain very high standards of hygiene and take extra care when treating patients with MRSA. People visiting patients in hospital should be advised to wash their hands thoroughly before and after. For more information on hospital hygiene and infection control, see www.nhsdirect.nhs.uk.

CONCLUSION
All nurses can help to slow the development of antibiotic resistance by using patient education to reduce their inappropriate use. It is vital that unnecessary antibiotic use is curbed and that when appropriately prescribed they are used properly to combat infections such as MRSA.

Patients at risk of MRSA infection

Those who are at greatest risk of MRSA include those who have:
- A weakened immune system, such as older people, newborn babies, or those with a long-term condition such as diabetes, cancer or HIV/AIDS;
- An open wound;
- A catheter, intravenous drip or other indwelling device that breaks the skin;
- A burn or cut on their skin;
- A severe skin condition such as leg ulcer or psoriasis;
- Recently had surgery;
- Have to take frequent courses of antibiotics.

www.nhsdirect.nhs.uk

References


Health Protection Agency (2008a) Antimicrobial Resistance. www.hpa.org.uk
