

Measures to manage MRSA risk

A recent national MRSA educational event heard that antimicrobial resistance is now a global threat to health, and that veterinary nurses have a critical role to play in the management of infectious disease, writes Mairead Deasy Dip AVN Dip HE CVN RVN

A national conference for Irish veterinary nurses was recently held in Athlone Institute of Technology to discuss methicillin-resistant *Staphylococcus aureus* (MRSA). This one-day event was organised and sponsored by the Irish Veterinary Nursing Association (IVNA), and supported by Promed and Interchem. A high calibre of national and international speakers addressed over 200 veterinary nurses. Representatives from all five veterinary nursing colleges attended the conference, making it one of the biggest veterinary nursing events ever to be held in Ireland.

ANTIBIOTIC RESISTANCE

Prof Luca Guardabassi from the University of Copenhagen, Denmark, gave a brief introduction to antibiotic resistance and the development of MRSA and methicillin-resistant *Staphylococcus pseudintermedius* (MRSP), respectively. He then discussed MRSA/MRSP colonisation in veterinary staff on an international level, the risks to human health and veterinary implications. In his third presentation, Prof Guardabassi reviewed the diagnosis of MRSA/MRSP infection in veterinary practice and highlighted that it should be suspected in the following cases:

- Patients from known MRSA/MRSP-positive households
- Patients with non-healing wounds
- Patients with non-antibiotic responsive infection where previous cytology and/or culture indicate staphylococci are involved
- Nosocomial or secondary infections in high-risk patients, such as immune-compromised animals, long-term hospitalised cases, patients with widespread skin and/or mucosal defects, and surgical cases, especially those undergoing invasive procedures and/or those with implants.

Prof Guardabassi suggested that all coagulase-positive staphylococci should be identified to the species level using standard bacterial culture and *mecA* polymerase chain reaction (PCR) antimicrobial sensitivity tests, including minimum inhibitory concentrations (MIC) and D-zone or PCR tests for inducible clindamycin resistance. Prof Guardabassi concluded by saying that the key points to managing the risks posed by antibiotic-resistant bacteria, such as MRSA and MRSP, were:

- Understanding how and why antimicrobial resistance arises and spreads
- Not relying on antibiotics alone and using them appropriately
- Performing cultures and antibiotic sensitivity testing whenever possible



Pictured at the national conference on MRSA for nurses in Athlone Institute of Technology were Mairead Deasy, Prof Luca Guardabassi, Shane Guerin, Dr Nola Leonard, Dr Olive Murphy, Louise O'Dwyer and Eilis Nichol, Chairperson of IVNA. Photo: Brian Lynch, AIT.

- Paying good attention to clinical practice, hygiene and infectious disease control.

INFECTIOUS DISEASE CONTROL POLICY

Louise O'Dwyer MBA BSc (Hons) VTS (Anaesthesia) VTS (ECC) Dip AVN (Medical & Surgical) is a registered veterinary nurse who is currently clinical director of Pet Medics, the largest emergency clinic in the UK. She emphasised that veterinary nurses can play a critical role in the management of infectious disease control in veterinary practice. Ms O'Dwyer highlighted the importance of having – and implementing – a written infectious disease control policy in practice. She stressed the following:

- Hand washing – a critical mode of transmission of bacteria is via human hands. Careful hand washing using a simple soap and warm water after handling a patient is vital to controlling the spread of infectious disease. Alcohol-based hand disinfectants should be available in numerous locations throughout the veterinary facility and used after each patient, and it should be ensured these hand disinfectants are effective against MRSA/MRSP. Only a small number of alcohol-based gels are approved for use. Gloves and disposable protective outerwear should be worn when handling known or suspected MRSA/MRSP-infected patients. She emphasised that gloves are not a substitute for hand washing
- Cleaning protocols must be clearly displayed in the appropriate areas, and cleaning should be divided into daily, weekly and monthly tasks
- Disinfectants should be readily available, and instructions for use should be prominently displayed.

MRSA/MRSP STUDY FINDINGS

Shane Guerin MVB MACVSc Cert SAO DCVSc MRCVS Dipl ECVS presented the results of his study, *MRSA\MRSP colonisation in Irish Veterinary Nursing Personnel in 2013*:

- 13/144 swabs were positive for MRSA colonisation
- 1/144 swabs were positive for MRSP colonisation
- 13/14 positives were in vet nurses under 40 years of age
- 80 per cent of positives were identified in nurses seeing >10 clinical cases a day
- All positive nurses were from practices seeing >80 per cent small animal cases
- 90 per cent agreed that MRSA is a potential issue in veterinary practice
- 41 cases of MRSA were identified in practice by nurses during 2013
- 20 per cent did not believe that hands are the most common route of MRSA transmission. Few nurses are currently using alcohol gels for hand hygiene in practice, or gloves when preparing patients for a surgical procedure
- 66/140 confirmed that prophylactic antibiotics were being used for routine procedures such as neutering.

This study confirmed that Irish veterinary personnel are at increased risk of MRSA colonisation compared with the general population in Ireland. Hand hygiene is being

carried out, but there is a wide variation in agents used, contact time and technique. There is also a high use of antibiotics for routine surgical procedures.

MEASURES TO REDUCE RISK

Dr Olive Murphy is a consultant clinical microbiologist in the Bons Secours Hospital, Cork, and a senior clinical lecturer in UCC. She delivered a lecture on the current management of MRSA colonisation and infection in healthcare workers (HCWs) and patients. The potential for HCWs to become colonised with MRSA is a well recognised occupational risk. However, there are measures that HCWs can take to reduce this risk, such as the use of standard precautions, appropriate personal protective equipment and hand hygiene. In addition, the potential impact of MRSA colonisation can also be minimised by appropriate screening and decolonisation and the use of an appropriate therapeutic agent in the event that a HCW becomes infected.

Dr Murphy then gave a shocking general overview of how antimicrobial resistance is now considered a major global threat, and highlighted a number of bacteria that are a serious health risk in Irish hospitals. Control of MRSA and other resistant pathogens is a multidisciplinary task, involving surveillance, patient screening, decolonisation, isolation and cohorting of patients, environmental cleaning, antimicrobial stewardship, maintaining adequate staffing levels and hand hygiene.

TRENDS OVER THE PAST DECADE

Dr Nola Leonard MVB PhD MRCVS is a senior lecturer in veterinary microbiology in the School of Veterinary Medicine, UCD. She presented her study on MRSA/MRSP trends in animals in Ireland over the past decade. The first isolation of MRSA in animals in Ireland was recognised in 2001. In healthy animals the isolation rates were low (1 per cent in dogs and 2 per cent in horses). MRSA isolates in dogs originated from wounds (50 per cent – included post-surgical infections), nasal isolates (20 per cent) and skin infections (16 per cent). In horses, the clinical isolates were almost always from wounds. The first cases of resistant MRSP were documented in 2008/2009 and were from post-surgical infections and the environment in a single private practice in Ireland.

In summary, Dr Leonard said that MRSA/MRSP prevalence remains low in Irish dog populations with clinical problems mainly relating to post-surgical wound infections.

CONCLUSION

MRSA/MRSP and other multi-drug-resistant organisms will likely continue to emerge as important zoonotic agents in veterinary practice. All veterinary personnel must be aware of the modes of transmission and methods of control to minimise the negative impact of these infectious agents on the health of patients, owners and personnel.

ACKNOWLEDGMENTS

Ms Gillian Coughlan BSc RVN PGDE and Athlone Institute of Technology. A special thank you to Mr Shane Guerin for all his help and support with organising this event.

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