METICILLIN RESISTANT STAPHYLOCOCCI (MRS) UPDATES

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EPIDEMIOLOGY
Meticillin-resistant staphylococci (MRS) present major challenges in veterinary and human medicine as they are often resistant to many or most clinically relevant antimicrobial agents and also due to their zoonotic potential (1, 2). In addition, MRS can remain viable on environmental surfaces for over a year, making control of spread and infection difficult. MRSA as a human hospital associated pathogen has been investigated for the past 50 years and when identified from pets represents a “spill-over” from humans to pets with humans and human healthcare systems as the main reservoir for this opportunistic pathogen (1). In contrast, MRSP emerged in Europe just over ten years ago and has since spread rapidly as a veterinary nosocomial pathogen. Molecular analytic tools can nowadays provide valuable insights into the transmission of MRS within a veterinary clinic and understanding the population structure (3) and the acquisition of new resistance genes of MRS may help to limit epidemic spread of successful clones (4).

CLINICAL PROBLEMS AND TREATMENT
Clinically, MRS infections resemble those of their meticillin-susceptible counterparts as MRS only differ from susceptible staphylococci in their set of resistance genes but virulence factors are typically not associated with resistance. Laboratory tests are required to assess susceptibility to antimicrobials and identification of MRS. Antimicrobial susceptibility test results will guide treatment for those cases where systemic therapy is needed. For infections involving highly drug-resistant strains, potentially unlicensed and less safe drugs may have to be considered (5, 6). In such cases, treatment considerations need to include the patient’s general health, chances of resolution of infection and identification and management of primary triggers for infection. For the majority of MRS infections, the focus of treatment recommendations has shifted to topical treatment. International, harmonized guidelines and recommendations on the management of MRS infections have recently been published and will be outlined in this session (7). Identification and management of underlying causes for infections is critical for long-term success as patients that have suffered from MRS infection once are predisposed to recurrences with even more resistant pathogens so that relapses need to be prevented. Failure of prevention of recurrences increases the risk of spread to other dogs and to people. Treatment of MRS patients needs to include hygiene measures and owner education. MRS carriage has been described to persist for almost one year after resolution of infection but data on how best to address MRS carriage in dogs is still lacking (8).

OPPORTUNITIES FOR LIMITATION OF SPREAD
Prevention of recurrent infections, good antimicrobial stewardship (AMS) and rigorous hygiene measures are the mainstay to reduce the prevalence of MRS and limit spread within practices and amongst pets. Recent data on antimicrobial use and multidrug-resistant veterinary pathogens from Scandinavian countries shows promising reductions in MRS following implementation of AMS guidance. Similar evidence for such measures exist on MRSA in human medicine from several countries. However, compliance, awareness and perceived cost remain challenges as for other prospective measures required for prevention of spread. Pets with skin disease though, present many opportunities for AMS that are practical, easy and cost-effective in order to reduce the spread of MRS. These include the frequent use of in-house cytology, topical therapy and staphylococcal bacterins as an alternatives to systemic
treatment, and monitoring and control of primary causative diseases and of carriage status after bacterial infection has been resolved (8).

REFERENCES


