Antimicrobial resistance among pathogenic bacteria from mink (Neovison vison) in Denmark

Antimicrobial resistance among pathogenic bacteria from mink (Neovison vison) in Denmark

Background: For proper treatment of bacterial infections in mink, knowledge of the causative agents and their antimicrobial susceptibility patterns is crucial. The used antimicrobials are in general not registered for mink, i.e. most usage is "off-label". In this study, we report the patterns of antimicrobial resistance among pathogenic bacteria isolated from Danish mink during the period 2014-2016. The aim of this investigation was to provide data on antimicrobial resistance and consumption, to serve as background knowledge for new veterinary guidelines for prudent and optimal antimicrobial usage in mink. Results: A total number of 308 Escherichia coli isolates, 41 Pseudomonas aeruginosa, 36 Streptococcus canis, 30 Streptococcus dysgalactiae, 55 Staphylococcus delphini, 9 Staphylococcus aureus, and 20 Staphylococcus schleiferi were included in this study. Among E. coli, resistance was observed more frequently among the hemolytic isolates than among the non-hemolytic ones. The highest frequency of resistance was found to ampicillin, 82.3% and 48.0% of the hemolytic of the non-hemolytic isolates, respectively. The majority of the P. aeruginosa isolates were only sensitive to ciprofloxacin and gentamicin. Among the Staphylococcus spp., the highest occurrence of resistance was found for tetracycline. Regarding the nine S. aureus, one isolate was resistant to cefoxitin indicating it was a methicillin-resistant Staphylococcus aureus. Both β-hemolytic Streptococcus species showed high levels of resistance to tetracycline and erythromycin. The antimicrobial consumption increased significantly during 2007-2012, and fluctuated at a high level during 2012-2016, except for a temporary drop in 2013-2014. The majority of the prescribed antimicrobials were aminopenicillins followed by tetracyclines and macrolides. Conclusions: The study showed that antimicrobial resistance was common in most pathogenic bacteria from mink, in particular hemolytic E. coli. There is a need of guidelines for prudent use of antimicrobials for mink.

General information

State: Published
Organisations: National Veterinary Institute, Bacteriology & Parasitology, Diagnostic & Development, Epidemiology, Technical University of Denmark
Publication date: 2017
Peer-reviewed: Yes

Publication information

Journal: Acta Veterinaria Scandinavica
Volume: 59
Issue number: 1
Article number: 60
ISSN (Print): 0044-605X

Ratings:
BFI (2019): BFI-level 1
Web of Science (2019): Indexed yes
BFI (2018): BFI-level 1
Web of Science (2018): Indexed yes
BFI (2017): BFI-level 1
Scopus rating (2017): CiteScore 1.45 SJR 0.655 SNIP 1.077
Web of Science (2017): Impact factor 1.497
Web of Science (2017): Indexed yes
BFI (2016): BFI-level 1
Scopus rating (2016): CiteScore 1.01 SJR 0.641 SNIP 0.826
Web of Science (2016): Impact factor 1.472
Web of Science (2016): Indexed yes
BFI (2015): BFI-level 1
Scopus rating (2015): CiteScore 0.98 SJR 0.644 SNIP 1.641
Web of Science (2015): Impact factor 1.23
BFI (2014): BFI-level 1
Scopus rating (2014): CiteScore 1.54 SJR 0.753 SNIP 1.21
Web of Science (2014): Impact factor 1.377
BFI (2013): BFI-level 1
Scopus rating (2013): CiteScore 1.41 SJR 0.539 SNIP 1.11
Web of Science (2013): Impact factor 1.382
ISI indexed (2013): ISI indexed no
Web of Science (2013): Indexed yes
Original language: English
Keywords: Antimicrobial consumption, Antimicrobial resistance, Escherichia coli, Mink, Neovison vison, Pseudomonas aeruginosa, Staphylococcus delphini, Streptococcus canis

Bibliographical note
This article is distributed under the terms of the Creative Commons Attribution 4.0 International License.

Source: Scopus
Source-ID: 85029446900
Research output: Research - peer-review › Journal article – Annual report year: 2017