Use of antimicrobials in EU – are politicians and science aligned?

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Abstract

There is a move to reduce the amount of antimicrobials used. Whilst cattle-only products are responsible for 3.5% of the total tonnage used in 2014 in the UK, cattle veterinarians are expected to reduce their use of antimicrobials. Responsible use guidelines and reducing the use of critically important antimicrobials are key to achieving this.

Key words: antimicrobials, resistance, UK

Résumé

Il y a une volonté de réduire la quantité d'antimicrobiens que l'on utilise. Bien que les produits associés exclusivement au bétail représentent 3.5% du tonnage total utilisé en 2014 au Royaume-Uni, on s'attend quand même à ce que les vétérinaires bovins réduisent leur utilisation d'antimicrobiens. À cette fin, il est primordial d'avoir des lignes directrices pour une utilisation responsable et de réduire l'utilisation d'antimicrobiens d'importance essentielle.

Background

The move to reduce the amount of antimicrobials used is not new. As far back as 1995, Denmark started to initiate moves to reduce antimicrobial use in pigs:

1995 - Ban on growth promoters in finishers
1998 - Right to dispense taken from veterinarians
2000 - Ban on growth promoters in all age groups and introduction of VETSTAT (kg active ingredient)
2002 - Use of fluoroquinolones restricted
2005 - Biannual audit of veterinarians
2010 - Voluntary ban on use of cephalosporins. Yellow Card System

There is increasing public and scientific concern about the potential transfer of antimicrobial resistance (AMR) from food-producing animals to humans.[5] However, increasing scientific evidence suggests that the clinical issues with antimicrobial resistance that we face in human medicine are primarily the result of antibiotic use in people, rather than the use of antibiotics in animals.[2]

EU Situation

In 2011 the EU Commission published the *Action Plan Against the Rising Threats from Antimicrobial Resistance*.[3] There were 12 actions, of which 5 were veterinary-related:

- Strengthen EU law on veterinary medicines and on medicated feed.
- Introduce recommendations for prudent use of antimicrobials in veterinary medicine, including follow-up reports.
- Introduce legal tools to tighten prevention and control of infections in animals in the new EU Animal Health Law.
- Promote efforts to analyse the need for new antibiotics in veterinary medicine.
- Strengthen surveillance systems on AMR and antimicrobial consumption in animal medicines.

In the UK in 2003 there were only 3 confirmed laboratory reports of bacteria resistant to carbapenems (antibiotics of last resort in human health). By 2012 this had increased to 800. Across Europe, around 25,000 people die each year as a result of hospital infections caused by resistant bacteria. AMR is on the UK National Risk Register with the Chief Medical Officer in March 2013, calling it a 'ticking time bomb'. In September 2013 the Department of Health and Department for Environment Food and Rural Affairs published the UK Five-Year Antimicrobial Resistance Strategy 2013 to 2018[2]:

- We will reduce antimicrobial use in livestock production in real terms over the next 4 years, measured in sales of antibiotic products against national livestock population, (milligrams/population correction unit).
- We will ensure that sales of fluoroquinolone and modern cephalosporin classes of antibiotics remain low and reduce further as a proportion of total antibiotic sales.

The Draft EU Law contains the following key statements:

- Reserve certain antibiotic classes for human use only
- Restrictions on cascade (off-label use) of certain classes of antibiotic
- Prescribers shall 'retail antimicrobial products only for animals which are under their care and only in the amount required for the treatment concerned'
- Requirement for collection of relevant and comparable data on the volume of sales and the use of veterinary antibiotics

The Way Forward

Cattle-only products were responsible for 3.5% of the total tonnage used in 2014 in the UK, therefore cattle veterinarians have to be seen reducing their use of anti-

microbials. Third and fourth-generation cephalosporins, fluoroquinolones, and macrolides have been identified as critically important antimicrobials (CIAs). Reducing the use of CIAs may lead to an overall increase in tonnage, as other antibiotics will require a higher mg/kg dose when compared with that used for CIAs.

Responsible Use

Guidelines on responsible use of antimicrobials in veterinary practice have been produced by the British Veterinary Association.[1] The key message is use as little as possible and as much as necessary. The 7-point plan is:

- Work with clients to avoid the need for antimicrobials
- Avoid inappropriate use
- Choose the right drug for the right bug
- Monitor antimicrobial sensitivity
- Minimise use
- Record and justify deviations from protocols
- Report suspected treatment failures to the Veterinary Medicines Directorate (VMD).

Use of the correct dose is vitally important, and a comparison of visual assessment and heart-girth tape measurement for estimating the weight of cattle in clinical practice found 55% of weight estimates were >10% from the reference weight, and the mean absolute percentage difference for all estimates was 15% (standard deviation 15%, interquartile range 5 to 20%). Underestimation was more frequent at higher weights, and accuracy of estimation was lower as weight increased. Overestimation tended to occur more frequently at weights <330 lb (150 kg).[7]

The challenge is to reduce, refine, and replace. Between 2010 and 2014, Langford Farm Animal Practice (LFAP), a clinical teaching practice of the University of Bristol, achieved a practice-wide reduction of 87% in the use of CIAs. No fluoroquinolones have been used by LFAP since 2009. Total antimicrobial use in mg increased by 5% over the same period against a 10% increase of dairy cattle numbers. There was no evidence of declining herd health or cure rates (whether real or farmer-perceived) with a move to first-line treatments.[6]

Conclusions

The increasing public concern about the potential transfer of antimicrobial resistance from food-producing animals to humans will continue. Cattle veterinarians need to review their use of antimicrobials and act to reduce the use of CIAs. Failure to do this will result in the politicians making non-scientific decisions. Science does not always trump politics.[4]

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