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ANTIMICROBIAL CONSUMPTION AND EXTENDED-SPECTRUM β -LACTAMASE (ESBL)-PRODUCING *ESCHERICHIA COLI* IN ITALIAN FATTENING UNITS

V. Baldo¹, F. Scali¹, F. Giudici¹, A.M. Maisano¹, G. Santucci¹, E. Giacomini¹, M. Lazzaro¹, A. Amicabile¹, G. Bontempi¹, S. Pongolini², G. Belluzzi³, A. Ianieri³, A. Colagiorgi³, I. Bruini³, S. Borrello⁴, L. Candela⁴, A. Vitali⁵, E. Begni⁶, M. Fadini⁷, G.L. Alborali¹.

¹ Istituto Zooprofilattico Sperimentale Lombardia Emilia Romagna, Brescia, Italy; ² Istituto Zooprofilattico Sperimentale Lombardia Emilia Romagna, Parma, Italy; ³ Dipartimento di Scienze degli Alimenti e del Farmaco, Università degli Studi di Parma, Parma, Italy; ⁴ Ministry of Health, Rome, Italy; ⁵ Unità Organizzativa Veterinaria, Regione Lombardia, Milan, Italy; ⁶ Azienda Territoriale Sanitaria di Brescia, Brescia, Italy; ⁷ Azienda Territoriale Sanitaria della Val Padana, Cremona, Italy.

Introduction

Extended-spectrum β -lactamase (ESBL)-producing *Escherichia coli* represents a risk for both human and pig health. Furthermore, antimicrobials misuses may increase ESBL spread.

The aim of this study was to investigate, in latter stages of production, relationships between presence of ESBL-producing *E. coli* and antimicrobial consumption.

Materials and Methods

A convenience sample of forty-eight heavy pig fattening units was selected in Lombardy region of Italy. Ten samples of faeces were collect for each farm, five on farm and five at slaughterhouse, and ESBL presence was screened using a phenotypic diagnosis. Farms were classified as ESBL-positive if, at least, one sample collected on farm and one at slaughterhouse were positive.

Antimicrobial consumption was estimated, as days of treatments per bred pig, using defined daily dose animal for Italy (DDDAit) and an average weight at treatment of 100 kg. Data were collected retrospectively on 2016.

Differences between ESBL-positive and ESBL-negative farms were investigated using Mann-Whitney *U* test.

Results

Twenty out of forty-eight farms were found ESBL-positive. Number of bred pigs per year did not differ significantly ($P = 0.3061$) between the two groups of farms. Medians of antimicrobials consumptions were 7.65 days/pig in ESBL-positive farms (range; 0.84-31.10) and 19.54 days/pig (range; 0.11-43.97) in ESBL-negative ones. Antimicrobials consumption were not significantly different ($P = 0.1212$) between the two groups.

Discussion & Conclusion

The presence ESBL-producing *E. coli* is a source of relevant concern for public health. Lack of differences in antimicrobials consumption, between ESBL-positive and ESBL-negative farms, may be due to a limited sampling and difference in usage patterns of specific active ingredients (i.e. β -lactams). Moreover, identification ESBL-producing *E. coli* could be improved using molecular techniques. Further clarifications are required regarding ESBL, antimicrobials consumptions and active ingredients patterns during all production phases of Italian heavy pigs.