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MOST DIARRHEAL DISEASES IN PET DOGS CAUSED BY MULTI-DRUG RESISTANT E. COLI

A study from China published in PLOS One finds that more than half of isolates from pet **dogs' diarrhea** contained multi-drug resistant **Escherichia coli (MDR)**, which researchers say could pose a threat to both animal and human health.

Researchers from Sichuan Agricultural University assessed the presence of **antimicrobial resistance (AMR)** in 135 E. coli isolates from dogs using the disk diffusion method. They also analyzed antibiotic resistance genes (ARG), virulence-associated genes (VAG), and population structure using PCR for 74 MDR strains and examined the association between AMR and ARG or VAG.

Of the 135 isolates, 54.8% were identified as MDR E. coli, with 71.1% being highly resistant to ampicillin, 62.2% resistant to tetracycline, and 59.3% resistant to trimethoprim-sulfamethoxazole.

The **widespread use of antibiotics** significantly increased MDR E. coli isolated from pet animals.

Analysis of associations between ARG and AMR or VAG in MDR strains showed 23

significantly positive associations between ARG and AMR, while only 5 associated pairs were observed between ARG and VAG (3 positive and 2 negative pairs).

Future research with larger samples and expanded sampling areas and the use of **genomic sequencing** should be conducted to provide more comprehensive data on MDR E. coli strains from dogs with diarrheal diseases.

As there is a continuous exchange of bacterial flora between owners and their pets, measures to prevent the transmission of MDR E. coli between pets and humans should be taken as elimination through feces can facilitate the spread of MDR bacteria.

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Adapted after Mary Van Beusekom, MS, 29 February 2024

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