Is Escherichia coli urinary tract infection a zoonosis?

Recently, it has been suggested that the Escherichia coli causing urinary tract infection (UTI) may come from meat and animals. The purpose was to investigate if a clonal link existed between E. coli from animals, meat and UTI patients. Twenty-two geographically and temporally matched B2 E. coli from UTI patients, community-dwelling humans, broiler chicken meat, pork, and broiler chicken, previously identified to exhibit eight virulence genotypes by microarray detection of approximately 300 genes, were investigated for clonal relatedness by PFGE. Nine isolates were selected and tested for in vivo virulence in the mouse model of ascending UTI. UTI and community-dwelling human strains were closely clonally related to meat strains. Several human derived strains were also clonally interrelated. All nine isolates regardless of origin were virulent in the UTI model with positive urine, bladder and kidney cultures. Further, isolates with the same gene profile also yielded similar bacterial counts in urine, bladder and kidneys. This study showed a clonal link between E. coli from meat and humans, providing solid evidence that UTI is zoonosis. The close relationship between community-dwelling human and UTI isolates may indicate a point source spread, e.g. through contaminated meat.

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