FIVE DIFFERENT COLONISATION PATTERNS OF CAMPYLOBACTER JEJUNI

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Ability to colonise is important in order for bacteria to be able to maintain themselves and propagate in the host. Chickens, which have encountered C. jejuni, maintain C. jejuni as part of their intestinal flora though it does not cause clinical disease. C. jejuni is recognised as the major cause of enteritis in humans, which is frequently related to the consumption of contaminated poultry (Blaser, 1997; Korolik et al., 1998).

Various C. jejuni strains (27) isolated from chicken droppings and from patients suffering from enteritis were screened using a 2-day-old chicken model to determine colonisation patterns of the strains tested. Duplicate groups of 5 chickens were inoculated with \(5 \times 10^7\) viable bacteria per chicken, and colonisation was screened by taking cloacal swabs and a final post mortem caecal sample. There were 5 different colonisation types observed, 1) immediate colonisation and prolonged excretion of viable C. jejuni bacteria (9 isolates: 3 chicken, 6 human), delayed colonisation and prolonged excretion of viable C. jejuni after several days (9 isolates: 3 chicken, 6 human), 3) immediate colonisation and slowly clearing excretion of viable C. jejuni bacteria (1 human isolate), 4) delayed colonisation and slowly clearing excretion of viable C. jejuni bacteria (3 isolates: 2 human 1 chicken), and 5) no colonisation of the intestines with C. jejuni bacteria (5 isolates: 4 human 1 chicken).

Colonisation type 1 and 2 led to sustained colonisation of the intestines of the chickens and, apart from pattern 3 expressed by only one isolate, none of the colonisation patterns was restricted to only one isolation source. In addition, the maximum caecal colonisation of various C. jejuni strains before and following a passage in vivo was determined. An increase in colonisation potential of 1000 fold was observed after a single passage in vivo, which is consistent with a previous study by Cawthraw et. al. (1996) The colonisation pattern of passaged strains were determined and the pattern remained the same. Enhanced colonisation potential may therefore account for the rapid rate of transmission within large flocks.


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