Changes in Campylobacter jejuni and Campylobacter coli Carriage Rates in the Zenica Canton of Bosnia and Herzegovina in the Pre- and Postwar Periods

In the first prospective study of this type conducted in Bosnia and Herzegovina, we assessed the carriage rates of Campylobacter jejuni and Campylobacter coli in the Zenica Canton (Bosnia and Herzegovina) in view of the socioeconomic changes resulting from recent war-associated events. The study covers two distinct time periods: the prewar period from 1990 to 1991 and the postwar period from 1996 to 1998. The Zenica Canton has a population of 145,000 in two distinct residential zones: an urban zone where most of the 79,000 inhabitants live in apartments, and a farming and agricultural rural zone where 66,000 inhabitants mainly live in farmhouses, raising domestic animals and working on the land.

A total of 5,288 stool samples were analyzed at the Laboratory of Sanitary and Clinical Microbiology of the Cantonal Center for Public Health in Zenica: 2,726 (52%) during the first time period and 2,562 (48.4%) during the second time period. The samples were collected from 340 children attending day care centers, 3,104 elementary school students, 221 high school students, and 1,540 adults. All samples were cultured on modified Preston medium (OXOID, Basingstoke, United Kingdom) and incubated in a microaerophilic atmosphere at 42°C for 48 h (3, 5). C. jejuni and C. coli were identified using standard microbiological methods (6). Twenty-eight Campylobacter jejuni and C. coli strains, resulting in an overall carriage rate of 0.5%, were isolated. However, 24 of these 28 strains were isolated during the prewar period (P = 0.0006), giving a carriage rate for that period of 0.8% as compared to 0.1% in the postwar period. This decrease could be associated with changes in the nutritional habits of the population during the war: the Institute of Statistics of the Federation of Bosnia and Herzegovina reports that a 75 to 90% decrease in livestock resources was recorded between 1990 and 1998. Consequently, far less milk, meat, and products derived from them were consumed during the war and in the postwar period; in addition, there was a substantial decrease in the direct contact with farm animals. With a single exception (one C. coli isolate), all isolates were isolated from a rural population, and even with C. jejuni predominating (64% of all isolates), the proportion of C. coli comparable to that demonstrated in this study (36%) has been reported only in the Central African Republic (39%) and in Croatia (54%) (1, 2, 4).

Interestingly, given that the postwar population in the Zenica Canton is overwhelmingly Muslim, consumption of pork, customarily associated with C. coli infection, is almost nonexistent; this suggests that cattle and poultry may be the primary source of C. coli infection in this area. Supporting that hypothesis is the fact that none of the C. coli carriers reported consumption of pork nor had they had any contact with pigs for several months prior to sample collection. This study could serve as the basis for further prospective studies needed to fully evaluate the epidemiology of Campylobacter infection in Bosnia and Herzegovina, as well as the model for an evaluation of the effects that the war settings in general may have on carriage and illness caused by Campylobacter spp. and other infectious agents.

REFERENCES


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Biochemical Identification and Characterization of DNA Groups within the *Proteus vulgaris* Complex

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Volume 39, no. 4, p. 1231–1234, 2001. Page 1231, column 1, line 13; column 2, line 6; and column 2, line 7 from the bottom, and page 1234, column 2, lines 17 and 20: “Mohr O’Hara” should read “O’Hara.”

Letter to the Editor: Changes in *Campylobacter jejuni* and *Campylobacter coli* Carriage Rates in the Zenica Canton of Bosnia and Herzegovina in the Pre- and Postwar Periods

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Volume 39, no. 5, p. 2036. Page 2036, title; column 1, lines 3 and 7; and column 2, line 2: “Zenica Canton” should read “Zenica Region” in every instance.