The quality of drinking water stored in canteens of field soldiers as a potential source of enteric diseases

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Abstract

Israel Defense Forces (IDF) guidelines for drinking water require the use of water only from sources that have been inspected and authorized by a medical expert. This study aimed to compare canteen water quality of two military units (infantry and armoured corps), to search for sources of possible microbial contamination and to look for any impact on gastrointestinal symptoms. Statistical analysis revealed that canteens of armoured corp soldiers were significantly more contaminated compared to those of infantry soldiers. Outdoor taps and water in trailers were found to harbour significantly higher numbers of microbial indicators compared to showers/lavatory sources; however, the numbers were much lower compared to canteens. Canteen water retention for more than one day revealed significantly increased numbers of examined microbial parameters, possibly due to secondary contamination or regrowth. Gastrointestinal symptoms were not significantly different between the two units despite the significant canteen water quality difference. An odds ratio evaluation was conducted on 45 exposure-illness combinations based on gastrointestinal symptoms, exposure and soldiers affiliation. Out of these 45 combinations only 14 resulted in odds ratio > 1, where 3 had high values (7.44, 7.46 and 11.2) suggesting a possible connection between diarrhoea and/or vomiting versus coliphages and faecal coliforms.