Screening for Mollicutes microorganisms in perinatal calf mortality cases in Polish dairy herds

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Abstract

Perinatal calf mortality in dairy herds has been reported worldwide. The etiology of stillbirth is multifactorial, and can be caused by various species of bacteria and environmental factors. Among them some potential pathogens from the Mollicutes class such as Mycoplasma (M.) spp. and Ureaplasma (U.) diversum can be isolated from the bovine genital tract and other organs of the suspected cattle. The aim of this study was to evaluate if the bacteria belonging to the Mollicutes class i.e. M. bovis, M. bovigenitalium, M. canadense, M. canis, M. arginini, M. bovirhinis, M. dispar, M. alkalescens and U. diversum could have an impact on perinatal calf mortality in selected Polish dairy farms. The material was: 121 stillborn calves (SB), 21 live born calves (C) and 131 cows (dams) from 30 Polish Holstein-Friesian herds. Samples were examined from all the SB calves’ and six control euthanized calves’ abomasal contents and lung samples collected during necropsy, and from the dams’ serum and placenta. In dams the serological ELISA, and in calves and placenta samples molecular PCR/denaturing gradient gel electrophoresis, methods were used. Screening of dams’ sera for antibodies to M. bovis (ELISA) showed seven dams positive for M. bovis, whereas none of the nine examined Mollicutes microorganisms were detected in the placenta and calves.

Key words: perinatal mortality, stillborn calves, Mollicutes, serology, PCR/DGGE

Introduction

Worldwide perinatal mortality of dairy calves varies from 2% to 10% (Mee et al. 2008). The causes of stillbirth (SB) are multifactorial, including bacterial infection, and it can vary in different regions and countries (Berglund et al. 2003, Jawor et al. 2013, Jawor et al. 2017). Pathogens from the Mollicutes class - Mycoplasma (M.) spp. and Ureaplasma (U.) diversum can be isolated from the bovine genital tract (Doig 1981). One of the most important bovine mycoplasma species - M. bovis – is a versatile pathogen and has been previ-