Defining clinical diagnosis and treatment of puerperal metritis in dairy cows: A Scoping Review

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Introduction

Puerperal metritis (PM) is a common infectious disease in dairy cattle. Currently there are discrepancies between clinical case definitions within and between available peer-reviewed literature and on-farms practices. The inconsistent use of PM criteria across studies and on-farm practices can result in disparities related to recommendations for treating cows, affecting judicious use of antimicrobials. Our objective was to systematically review literature for clinical signs used as diagnostic criteria for PM, including local (e.g., vaginal discharge) and systemic signs of infection (e.g., fever, drop in milk).

Materials and methods

The Preferred Reporting Items for Systematic Review and Meta-Analysis extension for Scoping Reviews (PRISMA-ScR) protocols was used to screen commonly used databases. One reviewer screened title/abstract for eligibility (n = 2,096) followed by full-text screening of selected articles (n = 396) by 2 reviewers to identify eligible articles (n = 174). Multiple correspondence analysis was used to evaluate the association among the definition and diagnosis of PM and year of publication of the studies.

Results

The most frequently cited reference article (37.5%) for the definition of PM was published in 2006, followed by articles published between 1998 and 2009 (13%). In 40.2% of articles, no reference was provided for the PM definition. For the definition of PM, the vaginal discharge (VD) was described in terms of color, odor and viscosity. Among colors, the terms used were red brown (61.4%), red (5.1%), brown (8.6%), chocolate (4%), white (1.7%), yellow (0.5%), pink (5.7%) or gray (0.5%); VD color was not reported in 24.1% articles. The VD odor was described as fetid (75.8%), putrid (5.1%), foul (10.3%) or other (5.7%) (e.g., abnormal, malodorous, odoriferous); odor was not mentioned in 7.4% of articles. The VD viscosity was described as watery (74.1%), purulent (27%), mucopurulent (8.6%), thin (4%), serous (2.8%) or abnormal (2.3%), and was not mentioned in 11.5% of articles. Fever was included in 59.7% articles as a criterion for PM diagnosis. The mostly used rectal temperature threshold was ≥ 39.5˚C (56.8%), followed by ≥ 39.2˚C (2.8%). Fever was not used as diagnostic criteria in 39.6% of articles. Approaches used for VD evaluation included rectal palpation (37.3%), intravaginal exploration with a gloved hand (18.4%), Metricheck (9.8%) or speculum (5.7%); for 28.7% of articles diagnostic tools used were not mentioned. The lack of reporting on the data items charted for the review was a prevalent finding in most of the relevant studies, which influence the scientific rigor and replicability of the methods of some studies.

Significance

This scoping review describes a disparity in robust and clear criteria used to diagnose PM in literature. Although select consensus articles are available, it is common for no references to be used, and further high-quality research is needed to identify a standard criterion for case definition for PM.

