Associations between lameness and clinical mastitis in dairy cattle on the herd, lactation and week levels

Jan Hultgren, PhD DVM
Department of Animal Environment and Health,
Swedish University of Agricultural Sciences, P.O.Box 234, S-53223 Skara, Sweden
E-mail: jan.hultgren@hmh.slu.se

OBJECTIVE

To study the relationship between claw health and clinical mastitis in cubicle-housed dairy cattle on different hierarchical data levels.

MATERIAL AND METHODS

Data on housing conditions, management, milk yield and animal health collected from 131 dairy herds of Swedish Holstein (SH) and Swedish Red (SR) cows.

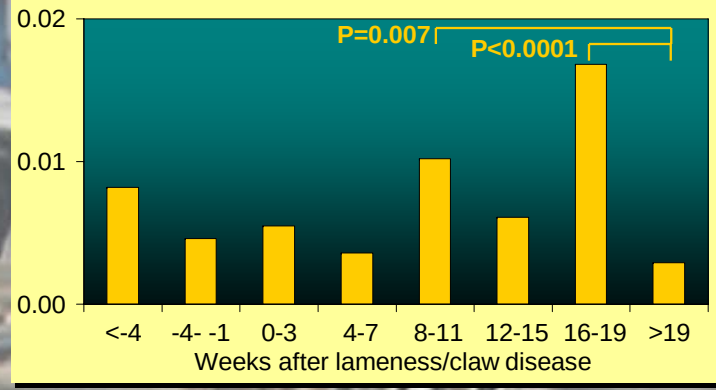
Herd and lactation levels: Cows calving from July 2003 to Dec. 2004. One record per cow-lactation (*n*=131 and 13,785, respectively). Veterinary-reported cases of claw disease and clinical mastitis within 90 d of lactation.

Week level: One record per cow-week in 25 of the herds during 2004 (*n*=6874). Veterinary- and farmer-reported cases of lameness/claw disease and clinical mastitis.

Analysed by logistic regression and generalized mixed modelling. Herd random and cow residual random with a compound-symmetry correlation structure. Variables for season, breed, parity, lactation stage and milk yield included when relevant.

Week level

Incidence rate of clinical mastitis, per cow-week (LSM)



CONCLUSIONS

Lameness is associated with clinical mastitis on the herd and week levels. The results indicate that a case of serious claw disease or lameness causes subsequent clinical mastitis.

RESULTS

Herd level: Max. herd incidence risk of clinical mastitis 24% (12% of herds had no reported cases) and of claw disease 4.5% (55% had no cases). Odds of an incidence risk of mastitis >0.04 3.1-fold higher (P=0.013) in herds with an incidence risk of claw disease >0.014 than in herds with no cases of claw disease.

Lactation level: Overall incidence risk of clinical mastitis 5.8% and of claw disease 0.92%. Not significantly higher odds of mastitis (OR=1.5; P=0.28) in cows with one or more cases of claw disease than in cows without claw disease.

Week level: Odds of mastitis 3.6-fold higher 8-11 weeks after (P=0.007) and 5.8-fold higher 16-19 weeks after (P<0.0001) than >19 weeks after a case of lameness/claw disease (diagram). Approx. 60% of all cases of clinical mastitis and 13% of all cases of lameness/claw disease were veterinary-reported.

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