Bovine mastitis (subclinical and clinical): benefits and risks of treatment with antibiotics

Hèctor Salas Olivè
Universitat Autònoma de Barcelona

Introduction

- Mastitis is the most prevalent and costly disease in dairy production (between 65 and 182€ / cow).
- The main pathogens causing mastitis are *S. agalactiae, S. dysgalactiae, S. uber, S. aureus* and *E. coli*.
- The prevalence in Spain is of 25% (Perez-Cabal et al., 2008).
- Nowadays, the treatment of mastitis is based in the administration of antibiotics in two different productive moments: during lactation and dry period. Another option is the directed treatment.
- Treatment with antibacterial has benefits but also involves an inherent risk of resistance appearances.

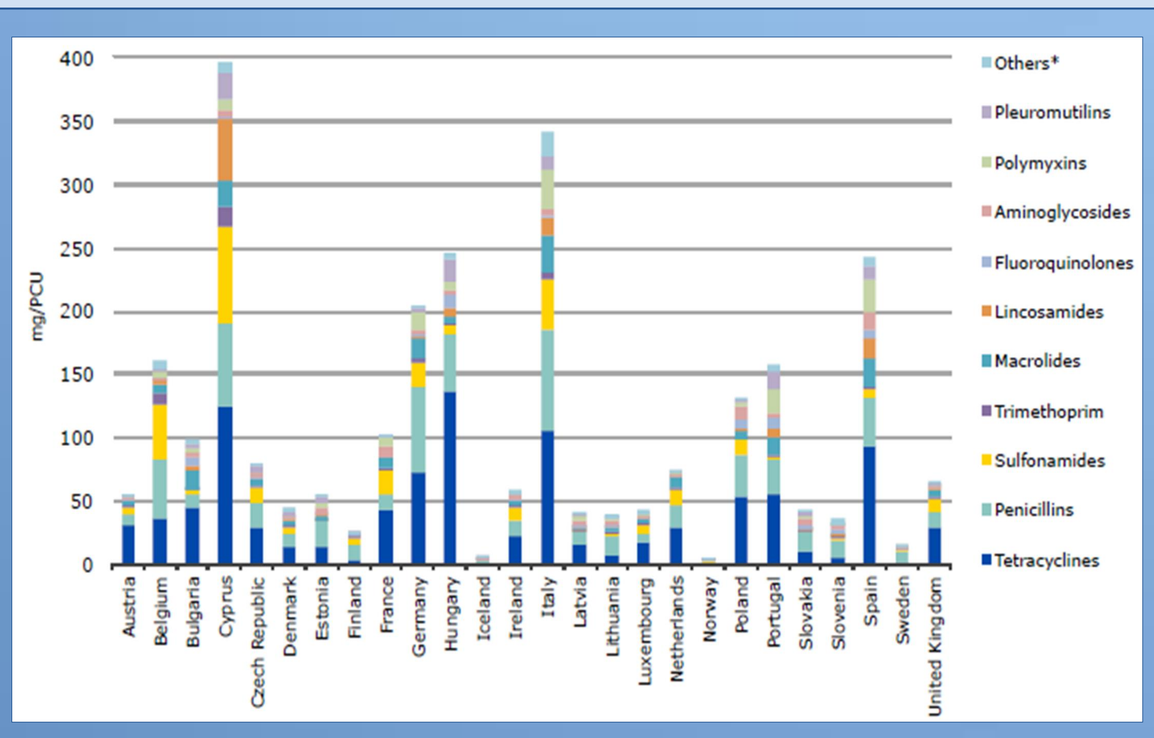

Figure 1: antibiotic consume by countries (2012)

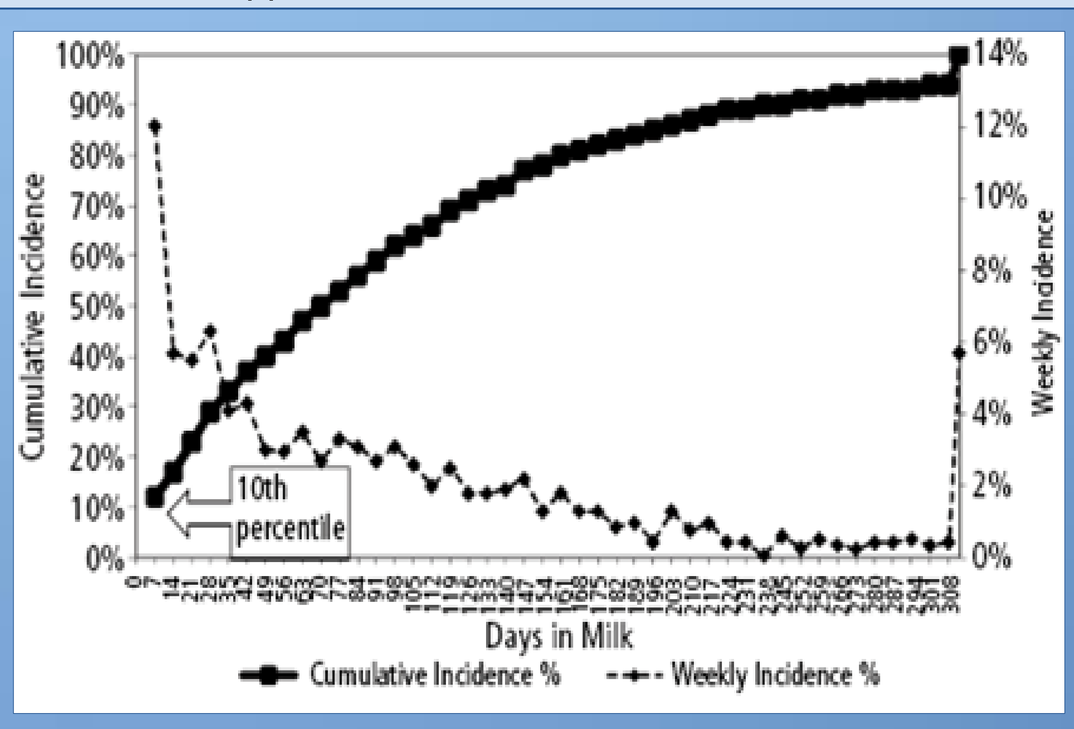

Figure 2: relation between mastitis and days in milk

Hypothesis and Objectives

- Determine the situation and the therapeutic practice of mastitis.
- Relate the results with the antibiotic used.
- Evaluate the relative importance of mastitis and antibiotic in milk production.
- Evaluate the risks of antibiotics according to operating practices.

Material and Methods

- A survey was answered by farmers of six dairy farms located in different areas of Catalonia.
- The survey is composed in three parts: general dates, mastitis and antibiotic use.

Results and Discussion

- Prevalence of mastitis was 46% with 26% of repetitions . High C.V.
- Drying routine treatment in 5 of the 6 farms.
- Clinical mastitis selection criterion is effectiveness.
- Use of antibiotics in lameness, displaced abomasum, metritis, pneumonia and placenta retention (depending on the farm).
- No rotation of antibiotics.
- In 4 of the 6 farms the prescriptor of the recipes wasn't the clinical veterinary of the exploitation.
- There is a tendency to abuse of antibiotics management (without defined criteria). Farmers are unaware of the risks or economic losses that can generate the abuse of antibiotics. Data poorly recorded.
- Management and feeding are the most important productive and economic factors
- Sample is too small to get certain trends.

Farm	Stage	Enrofloxacin	Amoxicillin	Cephalosporin	Cefalexin	Kanamycin	Sulfamida	Lincomycin	Cloxacillin	Streptomycin	Flunixin meglumine
1	Dry			x							
	Lactation			x		x					
2	Dry									x	
	Lactation						x				
3	Dry			x							
	Lactation							x			
4	Dry										
	Lactation	x	x								
5	Dry								x		
	Lactation	x	x								
6	Dry									x	
	Lactation										x

Table 1: antibiotic used in lactation and in dry stage

% Mastitis	Size	Production	CSS	Fertility	Days in milk	Mastitis repetition	Dry days	N° patologies with treatment
Correlation coefficient	0,25	0,08	0,67	-0,29	-0,37	0,88	-0,43	0,27

Table 2: Correlation coefficients between % mastitis and quantitative variables

Conclusions

- **Reducing antibiotic use:**
  - No treatment routine in dry period.
  - Targeted therapy in clinical mastitis
  - Good practice guides for each antibiotic and pathogen.
  - Vaccination
  - Antibiotic rotation
- **Data collection, monitoring and control of mastitis**
- **Formation of the farmers**
- **Prescription of recipes from the clinic veterinary**
- **Official records by the administration**
- **Development of new drugs**

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