the total amount of antibody to OVA in the periparturient period was significantly influenced by calving season, parity, and the level of antibody to OVA at the start of the trial. However, immunization protocol did not significantly influence the amount of antibody to OVA in the periparturient period.

Conclusions

In conclusion, a coliform vaccination protocol that has completed the immunization protocol prior to calving shows potential benefit. Numerical decreases in quarters cultured with *E. coli* at freshening, and less clinical *E. coli* infections were evident. However, these differences were not due to circulating anti-*E. coli* antibody. Furthermore, immunization protocol did not significantly affect 60-day milk production, total amount of anti-OVA antibody in the periparturient period, or DMI following immunization.

Diagnosis of Subclinical Endometritis and its Effect on Reproductive Performance

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Introduction

Chronic endometritis is a common disorder in post-partum dairy cows. It causes depressed reproductive performance in the current lactation and economic losses. In practice, rectal palpation and/or vaginoscopy are popular methods for the diagnosis of endometritis. The objective of this study was to evaluate a cytological method (cytobrush) as a diagnostic tool to detect subclinical endometritis (SE) in dairy cows and to quantify its effect on reproductive performance.

Materials and Methods

Holstein cows were examined by rectal palpation 21 to 27 days in milk. Vaginal discharge was regarded as a sign for clinical endometritis. Cytological samples from the uterus of 389 clinically healthy cows were obtained by a modified cytobrush method (Kasimanickam *et al* 1999). Two weeks later, 289 cows were re-examined. A cytobrush mounted on the tip of a metal rod and protected by a plastic catheter was inserted into the cavum uteri via the cervix. Subsequently, the brush was rolled on a microscope slide. After fixation and staining all slides were evaluated for the number and type of cells and the degree of bleeding. Three hundred cells were counted and classified as intact endometrial cells, dead cells, lymphocytes, polymorphonuclear neutrophils (PMN) and non-classifiable cells. Two categories were defined: cows with less than 5% PMN and cows with more than 5 % PMN in the cytological sample. Animals in the first category were assumed to have a healthy endometrium. Cows with more than 5% PMN were considered to have subclinical endometritis (SE).

Reproductive performance was evaluated by days to first service, first service conception rate, days open, total conception rate and the percentage of cows culled for infertility.

Results and Conclusions

At the first post-partum examination 41.1% (160/389) of the clinically healthy cows were diagnosed having SE. Fourteen days later only 17% (49/289) showed more than 5% PMN. First-service conception rate was 54.4% (98/180) and 46.1% (47/102) in categories one and two, respectively. There was no major difference in days open. Table 1 shows preliminary data of reproductive performance. The study will be continued.

Table 1. Reproductive performance for 389 cows with and without subclinical endometritis

Parameter	Polymorphnuclear Neutrophils	
	<5%	>5%
Number of Cows	229 (58.9%)	160 (41.1%)
Cows after VWP	207	132
Cows inseminated	191/207 (92.3%)	114/132 (86.4%)
Days to 1st AI	89.5	88.9
1st AI conception rate	54.4% (98/180)	46.1% (47/102)
Cows pregnant	77.8 %	65.9 %
Days open	112.0	115.9
Cows culled	13	12

VWP= voluntary waiting period
AI = artificial insemination

J-5 Bacterin Protection Against *Escherichia coli* Intramammary Challenge and Association with Milk and Blood Levels of J-5-specific Antibodies

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Introduction

This was an *Eschericia coli* intramammary infusion challenge trial evaluating a J-5 coliform mastitis commercial vaccine. Antibodies specific for J-5 strain of *E. coli* (IgG1, IgG2 and IgM) were measured in cows' milk and blood in response to vaccination and in response to IMM challenge with *E. coli*. Several outcome measures of mastitis severity and milk production response were compared among vaccinates and controls.

Materials and Methods

Eight Holstein dairy cows with at least one previous lactation were studied. Cows had records of low somatic cell count (SCC), no major episodes of any disease, and were close to drying-off when the study began. Duplicate aseptic quarter milk samples were cultured from all eight cows just before drying-off, approximately 50 days before they were due to calve again. Four cows were controls and four were vaccinates. J-5 bacterin was administered subcutaneously in the supramammary region just before cows were dry, and again four weeks later, during the mid-dry period. At mid-dry period, approximately three weeks before calving, blood samples were collected and aliquots of serum were frozen at –80°C (-112°F).

After calving, all quarters were milked individually and all quarter milk weights were recorded. Aseptic milk samples were cultured from each quarter seven days pre-challenge and two days pre-challenge for intramammary infection (IMI), and quarter milk was also tested for SCC seven days, two days, and one day before challenge to aid in selecting the challenge quarter.

Intramammary challenge solution was with an *E. coli* strain (1000 cfu) that had been used in previously reported mastitis challenge trials. After calving, both quarter milk and blood samples were collected 12 hours before intramammary challenge; and 12 and 24 hours after challenge. Milk was cultured and aliquots of supernatant were collected and frozen at –80°C (-112°F).

Following the intramammary challenge, milk weights were recorded at all milkings from the challenged quarter, the contralateral quarter, and the composite milking of the other two quarters. For the challenged quarter only, aseptic milk (duplicate samples)