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SUMMARY

This study was carried out on (1348) cow calves in different herds in Sharkia Governorate. Clinical examination of animals revealed that 303 calves showed different clinical findings and accordingly they were classified into 4 groups as the following:

Group (1): including 41 calves were suffered from respiratory symptoms including coughing and presence of serous nasal discharge. By auscultation, the breath sounds are increased especially over the cranioventral aspect of the lung. Crackles (moist rales) develop due to increasing of bronchiolar exudation. Consolidation also causes increased audibility of the heart sounds. Body temperature ranged from (39-41°C).

Group (2): including 118 calves were suffered from respiratory symptoms and enteric symptoms varied from mild to profuse watery diarrhea, weakness, severe depression, lethargy, unable to stand, arched back, off food and variable degrees of dehydration.

Group (3): including 18 calves showed respiratory symptoms and eye affection in the form of congestion of the mucous membrane of the affected eye, lachrymation and some of the affected animals showed corneal opacity.

Group (4): including 126 calves were affected with respiratory symptoms, enteric symptoms and eye affection.

The following samples were collected:

- 1- 303 faecal samples were collected from all groups for detection of ovae of gastrointestinal nematode, liver fluke and larvae of lung worms.
- 2- Nasal swabs were collected (303) from all groups of affected calves, in addition, (244) rectal swabs and (244) faecal samples were collected from calves (in groups 2 and 4) which suffering from enteric symptoms. Also ocular swabs (144) were collected from calves (in groups 3 and 4) which showing additional eye lesions. Moreover, (303) paired serum samples were collected from the affected calves (in all groups) for virus isolation and identification.

The results obtained in this study were the following:**I- Parasitological examination.**

Examination of 303 faecal samples for detection of gastrointestinal nematode, liver fluke and lung worms revealed negative results.

II- Virus isolation.

1. Parainfluenza 3 virus was isolated from 16 swabs (12 nasal and 4 ocular), and the virus was identified by virus neutralization test against hyperimmune serum of parainfluenza 3 virus.
2. Infectious bovine rhinotracheitis virus was isolated from 31 positive samples (23 nasal and 8 ocular) and identified by indirect fluorescent antibody (IFA) test.

III- Detection of parainfluenza 3 virus antigen and antibodies.

- 1- Detection of parainfluenza 3 virus antigen in the collected nasal and ocular swabs by haemagglutination and haemagglutination inhibition tests using guinea pigs RBCs revealed the following results:
 - a. In haemagglutination test, 89 (29.4%) nasal swabs and 21(14.6%) ocular swabs were positive.
 - b. In haemagglutination inhibition test, 50 (16.5%) nasal swabs and 11(7.6%) ocular swabs were positive.
- 2- Detection of antibodies against parainfluenza 3 virus in the collected serum samples by using ELISA test revealed 38(12.5%) were positive in first sampling and 82(27.1%) were positive in second sampling.

IV- detection of infectious bovine rhinotracheitis virus antibodies.

- 1- Detection of antibodies against IBR virus by serum neutralization test (SNT) revealed the positive results which were in first sampling, 42(13.9%) serum samples were giving positive results at titer 1:8 and in second sampling, 75(24.8%) serum samples were giving positive results at titer 1:32.
- 2- Detection of antibodies against IBR virus by ELISA test revealed the positive results which were in first sampling, 22(7.3%) serum samples giving positive results and in second sampling, 60(19.8%) serum samples giving positive results.

V- Detection of coronavirus antigen.

- Detection of bovine coronavirus (BCV) antigen in the collected nasal and rectal swabs by haemagglutination and haemagglutination inhibition tests using rat RBCs revealed that:
 - a- In haemagglutination test, 75(24.8%) nasal swabs and 65(26.6%) rectal swabs were positive.
 - b- In haemagglutination inhibition test, 25(8.3%) nasal swabs and 36(14.8%) rectal swabs were positive.

VI- Detection of rotavirus antigen.

- Detection of bovine rotavirus (BRV) antigen in the collected faecal samples by ELISA test revealed that 54(22.1%) faecal samples were giving positive results.

VII- Mixed infection.

- 1- 9 cases of affected calves with respiratory distress were found with mixed infection of parainfluenza 3 virus and infectious bovine rhinotracheitis virus (4 calves in 5 – 9 months and 5 calves in 10 – 14 months of age) through detection of PI 3 virus antigen and IBR virus antibodies.
- 2- 6 cases of affected calves with diarrhea (in 10 days to 4 months of age) were found affected with mixed infection by coronavirus and rotavirus through detection of the two viruses antigens.

CONCLUSION

From this study, it concluded that:

- 1- Vaccination of the pregnant dams with available vaccine against the causative viruses of respiratory affections (parainfluenza 3 and infectious bovine rhinotracheitis viruses) like Cattle Master 4 and enteric affections (bovine coronavirus and bovine rotavirus) like Scour Guard that help in decreasing the incidence of infection among newborn calves via taking colostrum containing immunoglobulins against these causative viruses.
- 2- Separation between calves in a separate area for each calf with good ventilation that help in decreasing of the incidence of infection with these pathogens among calves.

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