**4. RESULTS**

**4.1. Immunological test results**

The milk and sera test results are presented in the Table 02. Of the 250 sampled animals, serological results were available from 50 animals as the animals shown negative reaction with Milk Ring Test were considered as negative to brucellosis. Again, an animal was considered as positive if it became positive in all three tests (MRT, iELISA and RBPT). Here, among the 250 samples cows 21 were shown positive reaction with all three tests.

Table 02. The cows’ response to different immunological tests

|  |  |  |  |
| --- | --- | --- | --- |
| **Tests** | **Total Sample** | **Test Positive** | **Test Negative** |
| MRT | 250 | 50 | 200 |
| iELISA | 50 | 40 | 10 |
| RBPT | 50 | 21 | 29 |
| **MRT + iELISA + RBPT** | **250** | **21** | **29** |

Fig 06: Graphical representation of different immunological test results.

**4.2. Haematological test results**

The Milk Ring test (MRT) positive 50 cows were subjected to blood collection. And hematological tests were done in parallel with serological tests whether any significant diagnostic variations can be found between *Brucella* positive and negative groups.

The hematological tests exhibit a little diminution in the TEC, percentages of neutrophils and basophils in the *Brucella* positive group of cow. On the contrary, moderate augmentation of TLC was found in positive group and a slight increase in percentages of monocytes and eosinophils was found in the same group of cow though the results were not statistically significant. The values of Hb, PCV, ESR and lymphocytes were unchanged. Details of the comparative hematological tests result given the Table 03.

Table 03: Haematological parameters of Brucellosis positive and negative group of cattle

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variables** | **Positive (N=21)** | | **Negative (N=29)** | | **P value** |
| **Mean ± SD** | **95% CI** | **Mean ± SD** | **95% CI** |
| Hb (gm/dl) | 7.462 ± 0.532 | 7.219-7.704 | 7.238 ± 0.532 | 7.036-7.441 | 0.09 |
| PCV (%) | 29.714 ± 6.034 | 26.967-32.461 | 29.207 ± 6.304 | 26.809-31.605 | 0.75 |
| ESR (mm in first hour) | 0.00 | 0.00 | 0.00 | 0.00 | - |
| TEC (x106 cells/μl) | 4.867 ± 1.571 | 4.153-5.583 | 5.081 ± 1.746 | 4.416-5.745 | 0.56 |
| TLC (x103) | 9141.429 ± 2584.839 | 7964.824-10318.03 | 8487.931 ± 3288.906 | 7236.898-9738.964 | 0.39 |
| Lymphocyte (%) | 64.333 ± 8.212 | 60.595-68.071 | 64.931 ± 8.594 | 61.662-68.199 | 0.82 |
| Monocyte (%) | 5.286 ± 3.243 | 3.809-6.762 | 4.276 ± 2.389 | 3.367-5.185 | 0.16 |
| Neutrophils (%) | 22.333 ± 7.438 | 18.947-25.719 | 23.586 ± 8.842 | 20.223-26.949 | 0.58 |
| Eosinophil (%) | 7.572 ± 5.644 | 5.002-10.141 | 5.966 ± 3.191 | 4.752-7.179 | 0.27 |
| Basophil (%) | 0.238 ± 0.436 | 0.039-0.437 | 0.379 ± 0.494 | 0.192-0.567 | 0.35 |
| MCV (fl) | 66.073 ± 21.094 | 56.470-75.675 | 61.184 ± 22.879 | 52.483-69.887 | 0.13 |
| MCH (pg) | 16.775 ± 6.323 | 13.897-19.654 | 15.942 ± 4.705 | 14.153-17.732 | 0.20 |
| MCHC (%) | 25.988 ± 4.938 | 23.741-28.236 | 25.585 ± 4.216 | 23.982-27.189 | 0.15 |

Fig 07: Graphical representation of blood parameters.

The association of the hematological parameters at *p* ≤ 0.05 is shown in Table 04.

Table 04: Association of positive samples and explanatory variables (p ≤ 0.05) in multinomial logistic regression model

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Variables** | **Co-efficient** | **Std. Error** | **t** | **P > t** | **95% CI** | |
| Hb (gm/dl) | -0.24235 | 0.14296 | -1.70 | 0.098 | -0.53127 | 0.04657 |
| PCV (%) | -0.00435 | 0.01348 | -0.32 | 0.749 | -0.03159 | 0.02291 |
| ESR (mm in first hour) | - | - | - | - | - | - |
| TEC (x106 cells/μl) | 0.02989 | 0.05033 | 0.59 | 0.556 | -0.07182 | 0.13162 |
| TLC (x103) | -0.00002 | 0.00003 | -0.86 | 0.394 | -0.00007 | 0.00003 |
| Lymphocyte (%) | -0.00349 | 0.01511 | -0.23 | 0.818 | -0.03404 | 0.02705 |
| Monocyte (%) | -0.04927 | 0.03408 | -1.45 | 0.156 | -0.11817 | 0.01962 |
| Neutrophils (%) | -0.00942 | 0.01713 | -0.55 | 0.585 | -0.04404 | 0.02519 |
| Eosinophil (%) | -0.02387 | 0.02157 | -1.11 | 0.275 | -0.06747 | 0.01973 |
| Basophil (%) | 0.15223 | 0.16011 | 0.95 | 0.347 | -0.17135 | 0.47581 |
| MCV (fl) | 0.00435 | 0.01348 | 0.32 | 0.131 | 0.03159 | 0.02291 |
| MCH (pg) | 0.00349 | 0.01511 | 0.23 | 0.200 | 0.03404 | 0.02705 |
| MCHC (%) | 0.02989 | 0.05033 | 0.59 | 0.153 | 0.07182 | 0.13162 |