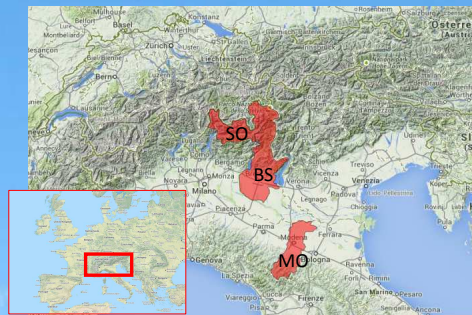


PROGNOSTIC VALUE OF COMPLETE BLOOD COUNT PARAMETERS APPLIED TO ROE DEER (*Capreolus capreolus*) RECOVERY: PRELIMINARY RESULTS. †

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Introduction

Complete blood count (CBC) is one of the most useful ancillary test in Veterinary Medicine (Jones & Allison, 2007). Notwithstanding the prognostic value demonstrated for domestic species, this test is not routinely performed in wildlife rehabilitation center, mainly because of handling difficulties and the lacking of reference values. Wildlife recovery is an increasing working field in Veterinary Medicine but the practitioner has few tools to act appropriately. Here we evaluate the suitability of CBC for Roe deer (*Capreolus capreolus*), one of the most represented species in Italian wildlife rehabilitation centers.



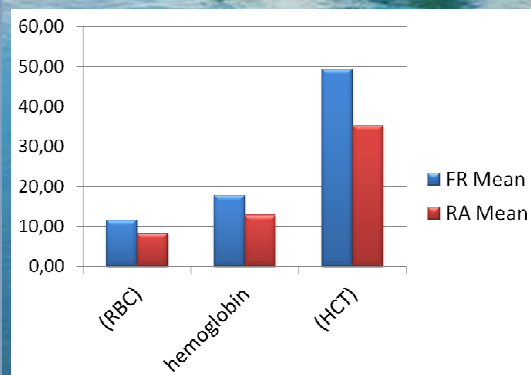
FR				RA mean	WD mean	WI mean
(RBC)	11,55	1,79	11,01	8,23	9,52	12,75
hemoglobin	17,79	2,69	16,99	12,77	15,00	20,75
(MCH)	42,89	2,72	42,08	44,70	45,25	42,20
(HCT)	49,37	7,23	47,22	35,33	43,05	53,45
(MCHC)	15,43	0,72	15,22	15,93	15,75	16,35
(MCHC)	36,06	2,03	35,46	35,97	34,85	38,80
(RDW)	24,70	2,07	24,08	22,67	22,70	25,75
(WBC)	4,72	1,93	4,15	4,75	1,00	9,34
lymphocytes	2,33	1,51	1,88	2,66	0,57	1,07
lymphocytes %	49,11	21,80	42,61	59,27	59,05	12,16
neutrophils	1,82	1,70	1,32	1,67	0,14	6,40
neutrophils %	36,93	21,82	30,43	32,28	12,31	64,65
eosinophils	0,12	0,30	0,03	0,00	0,14	1,61
eosinophils %	3,23	7,58	0,97	0,03	12,80	20,40
monocytes	0,27	0,17	0,22	0,24	0,12	0,22
monocytes %	6,52	4,31	5,23	5,09	11,40	2,55
basophils	0,17	0,14	0,13	0,19	0,05	0,02
basophils %	4,20	3,37	3,19	3,34	4,03	0,24

Tab 1: reference values calculated from FR group

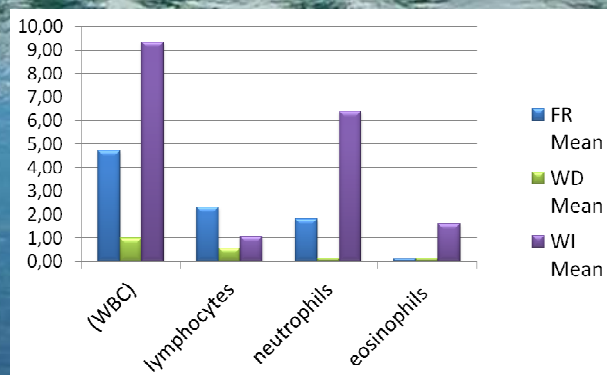
Tab 2: mean values for RA, WD and WI groups. Red indicate higher values, blue indicate lower values compared to FR intervals.

Materials

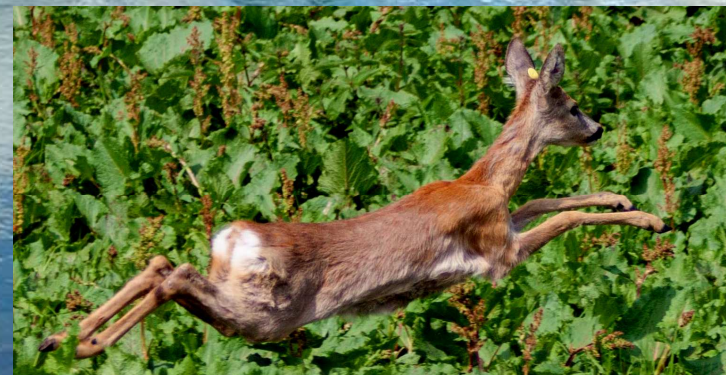
Blood samples were collected in EDTA tubes from 52 roe deer in 3 different rehabilitation center in north and central Italy (Modena= **MO**; Brescia= **BS**; Sondrio= **SO**). CBC was performed trough automated hematology analyzer (Cell-dyn 3700[®], Abbott Laboratories). For statistical analysis we have compared results between fully recovered animals (FR, n=45) and subjects died in a five days period after sampling (n=7); divided by main alteration showed in red blood cells (**RA**, n=3); white blood cells decrement (**WD**, n= 2) and white blood cells increment (**WI**, n=2). A comparison was also made between different rescue centers (**MO**: n=33; **BS**: n=6; **SO**: n=13). ANOVA and Scheffe post hoc statistical analysis were performed through SPSS Statistics for Windows (Version 17.0. Chicago: SPSS Inc).



Graph 1: comparison between selected parameters of FR and RA group

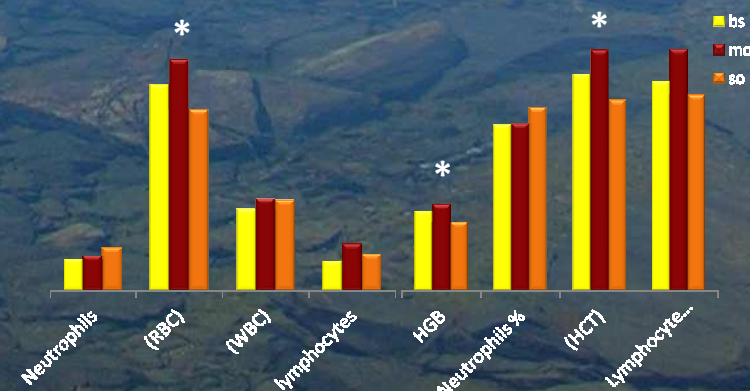


Graph 2: comparison between selected parameters of FR, WD and WI groups



Results and discussion

An impressive difference is shown from the comparison between reference values from FR group (Table 1) and dead groups (**RA**, **WD** and **WI** in Table 2). From a statistical point of view RBC, Hemoglobin and HCT were lower in **RA** than in FR ($p < 0,05$) (Graph. 1). **WD** showed significant lower WBC than FR ($p < 0,05$) and **WI** has increased WBC, Neutrophils, Eosinophils and Eosinophils% and decreased lymphocytes% ($p < 0,05$) (Graph. 2). Data show that CBC have good prognostic values for roe deer and is able to detect major abnormalities in red and white blood cells. It should be noted that most of FR animals (83%) comes from the one center that have a 24/7 ambulance service (il Pettiroso, **MO**) and grant a rapid and specialized first aid. In fact roe deers from the other rescue center had lower RBC, HCT, HGB and WBC, lower, lymphocytes and lymphocytes % values, moreover **SO** has higher neutrophils and neutrophils% (Graph. 3). These difference demonstrate a more chronic, probably cortisol induced, stress profile (Meyer and Harvey, 2004). That could be also due to different environmental factors which makes rescue and transport more difficult and to a more variegate *noxae*.



Graph 3: mean values for selected variables divided by provenience, asterisk indicate significative difference between SO and MO. ANOVA $p < 0,05$

References:

- Jones, ML., and Robin WA. 2007."Evaluation of the ruminant complete blood cell count." *Veterinary Clinics of North America: Food Animal Practice* 23.3: 377-402.
- Meyer DJ, Harvey JW. 2004. *Veterinary laboratory medicine: interpretation and diagnosis*. Saunders.