

Immunological parameters of dogs when kennelled: a preliminary study

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Shelter poor environment and an inappropriate management can be detrimental to dogs especially when housed for lengthy periods of time. Therefore, welfare indicators are crucial to establish the standards for managing sheltered dogs. Previous studies, in sheltered dogs, evaluated mostly acute stress response and, moreover, very few studies have assessed the effects of kennelling on immune parameters since stress modulates immunocompetence. The aim of this study is to assess a set of immune parameters useful to indicate sheltering adaptation in order to identify possible poor welfare in dogs. A follow up of 12 mixed-breed dogs, housed in a shelter of Lazio Region, was set on the basis of their age, their gender and health conditions (unhealthy animals were excluded), from the entrance in the kennel to eight weeks of stay. Dogs were maintained in indoor spaces with an outdoor exercise paddock. Peripheral blood samples were collected once every week both in plain tubes and with K3-EDTA from the jugular vein and immediately sent to the laboratory. A total leukocyte count as well as the lymphocyte subsets ratio CD4/CD8 were performed. Innate immune response was assessed by complement activity and lysozyme serum levels. From the entrance, during the first eight weeks of staying, leucocytes and lymphocytes mean count showed physiological values as well as CD4/CD8 ratio. On the contrary, complement activity and lysozyme registered respectively lower and higher serum levels than reference species range. Nevertheless, no significant difference was observed during the period of study. Considering the dog's age, only complement resulted significantly lower in younger animals ($p < 0.05$). Regarding the dog's gender influence, a significant difference was observed between males and females in serum lysozyme levels as well as in leucocytes, lymphocytes count and in CD4/CD8 ratio in at least two samplings. Since further investigations are still in progress in order to understand the role of sheltering on individual immune response, the interpretation of immune measures, especially during chronic stress, could represent a valid tool to improve dog management and identify possible disease susceptibility.