

EDITORIAL COMMENT

Genetics and animal welfare in the world of the pedigree dog

The relationship between man and other animals is one which should be based upon care and concern. Even among companion animals, however, cruelty can rear its ugly head all too often – but sadly concerns expressed about this are often tempered by factors which relate more to taking than sharing.

Within the world of the pedigree dog, competition is extreme – and breeding policy based on dedication to breed type has resulted in the appearance of some 300 inherited diseases among canine species worldwide. While discussion of the issues may be involved, in essence these are man-made diseases, and, as such, largely preventable. Inbreeding to enhance desired appearance or performance can mean that the effective gene pool is restricted and the control of inherited diseases can be difficult.

In my specific field of interest, ocular disease, sadly the spectrum of inherited disease in pedigree dogs involves many breeds and all parts of the eye. Disease type and incidence vary geographically, as does breed popularity. Excluding adnexal (eyelid) problems, some 44 of the 188 breeds currently registered by the Kennel Club (London) in the UK are involved in nine, proven, primary ocular conditions. These include severe defects of the lens, retina and the uveal (iris and ciliary body) tract. The possibility of hereditary disease is being investigated in another 50 breeds, and the range of ocular tissue involved additionally includes the cornea and optic nerve.

Many of these ocular diseases are single-gene defects and the mechanism(s) of inheritance can be adequately described for most. Thus, there is a basis for disease control – but late onset, incomplete penetrance and carrier status introduce difficult considerations. At present, regular clinical examination represents the most effective way of attempting disease control – but this has obvious limitations. For the future, DNA-based tests promise to allow the accurate determination of genotype in dogs which appear clinically normal at the time of clinical examination. The dog genomic map is almost complete, and tests for progressive retinal atrophy in the Irish Setter, Cardigan Corgi, Labrador Retriever, Miniature and Toy Poodle and the Cocker Spaniel are either available or shortly to become so. These developments offer real hope.

However, it must be remembered that, irrespective of the method of diagnosis, successful disease control means the acceptance of an inherited disease as a breed problem; and that wholesale subscription to the concept of control is required if it is to become a reality. There are encouraging signs that, with the advent of DNA-based tests, the Kennel Club (London) will become more involved in the control of inherited canine disease, possibly linking its registration system to clinical status.

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November 1999