News from Animal Health Trust

We have now tested a group of our ESSs samples to determine the frequency of the RPGRIP1 mutation in the UK population, and we estimate the frequency of the mutant allele to be about 39% of the alleles in the population, where as the normal allele accounts of about 61% of the alleles. About 33% of dogs tested were homozygous normal (i.e. carried two copies of the normal gene), about 56% were carriers and 11% were affected. So the mutation doesn't appear to be as common in the UK as it is in the US.

As I am sure you are aware, we have identified several dogs that have been diagnosed with PRA but that do not carry two copies of the mutation and we are repeating these tests now, to make sure our results are correct. If there was an isolated case whose clinical story did not match with its genotyping result then I think we could suspect a sample mix up, or a miss-diagnosis, but as we have more than one case I suspect there may be two forms of PRA segregating in the ESS, at least in the UK. Out test detects the presence or absence of a single mutation in a single gene that we know is associated with an increased risk of one form of PRA, but unfortunately we currently have no way of testing for this assumed second form of PRA. The existence of this second form of PRA has only become apparent very recently and unfortunately our numbers are still too small to say which is the more common form in the UK.
It is possible the dogs we have samples from, whose genotypes don't correlate with their phenotypes, are all closely related, and altho' they seem relatively common in our small sample set they might actually be relatively uncommon when the whole UK ESS
population is considered.

I know there is also confusion over which samples we have tested as part of the research undertaken at the AHT and I will try to explain our reasoning for what we tested and what we didn't test. We never obtained sufficient samples from affected dogs at the AHT to start a research project from scratch. For that we usually require at least 12-20 affected dogs and at least as many close relatives. We found the mutation in a single ESS sample with PRA, by chance, during a routine experiment we carried out and that is when I contacted Gary Johnson and suggested he screen his much larger collection of ESSs for the mutation, because I knew he was planning a genome scan to look for mutations associated with PRA in the ESS. Once Gary had found an association with the mutation and PRA we screened all the affected samples we had, and any parents. But we had to rely on Gary's results because our sample
collection was not sufficient to make any statistically significant conclusions. And that is why we didn't use all the family members we had been donated. The AHT has never had any direct funding to study PRA in the ESS and so we have had to be conservative in our approach; screening all the samples we had would have been too expensive and the majority of the samples wouldn't have helped the research.

So I hope that helps everybody understand what we know and what we don't know. As you see, there are still some aspects of PRA in the ESS that remain to be elucidated, but the AHT firmly believes that if breeders breed away from the mutation we are testing for the incidence of PRA in the breed will go down, and it is therefore in the breed's best interests for the AHT to offer this test at this time. It might be many years before we know for sure that there is another form of PRA in the ESS, never mind have a test for it; those years might as well be spent avoiding breeding dogs homozygous for the mutation we know about.

Please feel free to ask any more questions you might have and also free to share this information with anybody you would like to share it with.

Cathryn Mellersh, Animal Health Trust