Measurement of iohexol from canine plasma: comparative analysis between enzyme-linked immunosorbent assay, neutron activation analysis, and high performance liquid chromatography

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Introduction
Iohexol (Omnipaque®) is a non-radioactive, iodinated, water-soluble radiographic contrast medium, that is widely used for imaging purposes in both the clinical, and research settings. This well known X-ray contrast medium is extensively used worldwide, considered as a secure, economical, and easily available.

This contrast agent is also commonly used as a marker for glomerular filtration rate in both humans and animals such as dogs and cats. It has also been used to test intestinal permeability in humans, dogs, horses and rats.

Aim of study
To determine the FIT-GFR iohexol (ELISA) Kit accuracy for the measurement of iohexol in canine plasma, and to compare it to both high-performance liquid chromatography (HPLC) and neutron activation analysis (NAA).

Materials and Methods
Blank and iohexol-containing plasma samples (n=100) from dogs were collected from the jugular vein in lithium heparin tubes before and after intravenous application of 3.0 g iohexol/dog to the cephalic vein of healthy dogs.

CONCLUSIONS
✓ Findings from our study establish that measurement of iohexol from canine plasma using the ELISA Kit is as reproducible and precise as using HPLC or NAA.
✓ Moreover, using ELISA Kit for measuring iohexol may be more practical, economical and useful than using HPLC or NAA.

Fig. The iohexol concentration (μg/ml) in collected canine plasma samples measured by ELISA, NAA and HPLC.

Results
The results of this study showed that the correlation coefficients when comparing ELISA vs. HPLC (r=0.98), ELISA vs. NAA (r=0.99) and HPLC vs. NAA (r=0.98) were all excellent.

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References