



GLYCAEMIC CONTROL IN DOGS WITH DIABETES MELLITUS AND OWNER PREFERENCE IN INSULIN ADMINISTRATION

The objective of this study is to assess owner preferences and the effect on glycaemic control of two different delivery methods (VetPen® vs U40 insulin syringes) for porcine insulin zinc suspension (Caninsulin®) in a randomized, 2-period crossover, comparative study in dogs with diabetes mellitus.

The study is a randomized crossover prospective study with two arms, each of 8 weeks. Thirty client-owned dogs with naturally occurring diabetes mellitus will be studied. Dogs will be assigned to one of the two groups at admission using software for randomization.

Arm 1	Arm 2
Group 1 – VetPen	Group 1 – U40 syringes
Group 2 – U40 syringes	Group 2 – VetPen

The investigator should assess the clinical status of each animal at admission to the study (**week 0, Day 0**), and on **in weeks 1, 2, 3, 4, 6 and/or 8**, for each arm (VetPen® or U40 syringe) of treatment.

The glycaemic control (effectiveness) in dogs treated with Caninsulin will be assessed using the following scoring system.

Presence of polyuria (PU)/polydipsia (PD):

- good (absent) (2)
- moderate (present but improved) (1)
- poor (present and unchanged) (0)

Body weight:

- good (stable or increased) (2)
- poor (decreased >5%) (0)

Optimal blood glucose curve defined as ≥50% of blood glucose concentrations in the range of 4 to 15 mmol/L (80 to 270 mg/dL):

- Yes (≥ 50%) (2)
- No (< 50%) (0)

Median blood glucose concentration:

- good (<13 mmol/L or <230 mg/dL) (2)
- moderate (13-17 mmol/L or 230-300 mg/dL) (1)
- poor (>17 mmol/L or >300 mg/dL) (0)

Nadir (lowest observed blood glucose concentration):

- good (4-10 mmol/L or 80-180 mg/dL) (2)
- moderate (10-14 mmol/L or 180-250 mg/dL) (1)
- poor (>14 mmol/L or >250 mg/dL) (0)

Serum fructosamine concentration:

- good (<450 μmol/L) (2)
- moderate (450-550 μmol/L) (1)
- poor (>550 μmol/L) (0)

The owner preference for the delivery method will be assessed using the following questionnaires.

Overall, which device do you find easier to use?
Which device makes you feel more confident in your ability to keep your pet's blood sugar well under control?
Which device do you prefer in terms of handling (ease of holding, fit in hand, etc.)?
Which device is more stable when injecting insulin?
Which device makes you feel more confident that you have injected the correct amount of insulin?
Which device do you feel more confident with when selecting the required dose of insulin for injection?
Which device has the easiest to read insulin dose scale?
Overall which device would you prefer to continue using?

How satisfied are you with your current treatment?
How convenient have you been finding your treatment to be recently?
How flexible have you been finding your treatment to be recently?
How satisfied are you with your understanding of your pet diabetes?
Would you recommend this form of treatment to someone else?
How satisfied would you be to continue with your present form of treatment?
How often have you thought your dog being hypoglycemic?
How often have you thought your dog being hyperglycemic?

This study intends to provide a comparison between the two abovementioned delivery system in order to establish which method should be considered the best choice (in terms of ease of use, satisfaction, convenience, flexibility) for the treatment of diabetes in dogs.

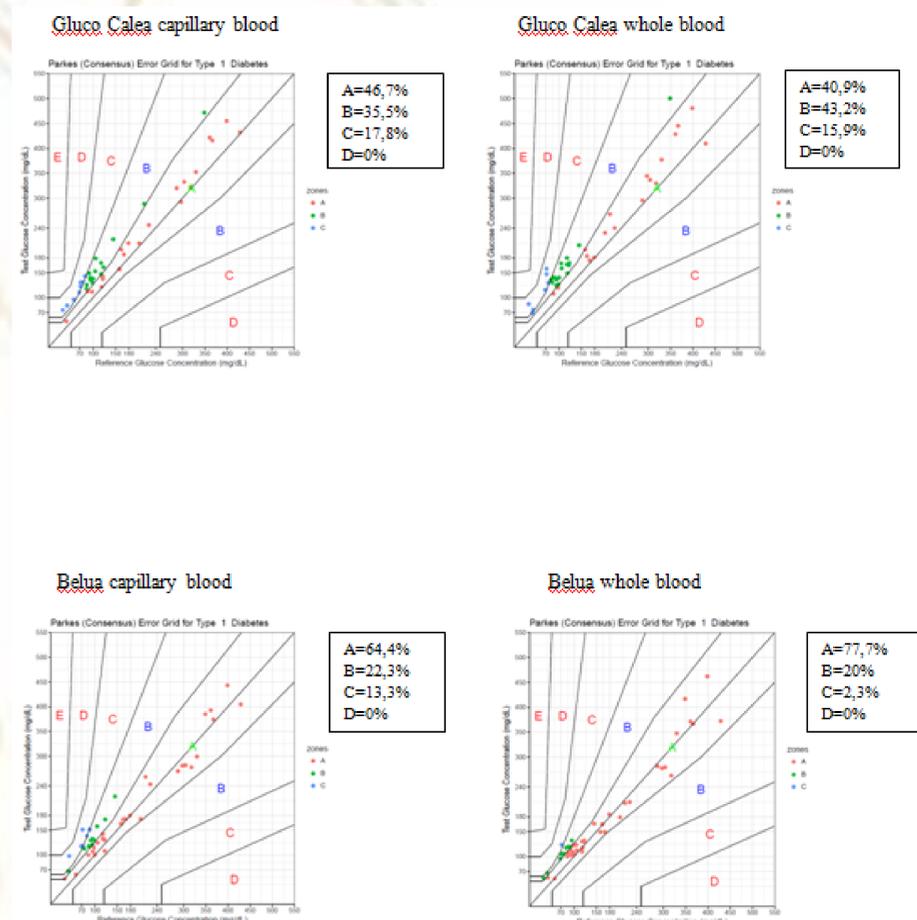
EVALUATION OF ONE PORTABLE BLOOD GLUCOSE METER AND ONE PORTABLE GLUCOSE-KETONES METER IN DOGS

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The aims of this study were to assess the accuracy and precision of two devices (GLUCO CALEA; GC and BELUA, BE; WellionVet) in canine venous and capillary blood samples based on ISO 15197:2013 and to evaluate packed cell volume (PCV) interferences.

Samples were obtained from 45 non anemic dogs (PCV 37-54%) and 10 anemic dogs (PCV<37%) divided into three glycemic ranges: high (>140 mg/dL), medium (90-139 mg/dL), and low (<90 mg/dL). Paired measurements of glucose and 3-β-hydroxybutyrate (3-HB) from capillary and venous blood samples were determined using the two devices and compared with the results of reference methods (enzymatic hexokinase and 3-HB-dehydrogenase, respectively) obtained by an automated chemistry analyzer (Beckman-Coulter AU480).

Mean differences (mg/dL) between measurements of each Portable Blood Glucose Meter (PBG) on capillary and venous blood and values measured by the reference method were: GC 37.8±24.2, 44.1±27.2, BE 20.4±28.6 and 10.2±25.1 respectively. A positive significant correlation between all paired samples was found for both devices (r>0.89). However neither PBGMs fulfilled ISO requirements.



Within-run and between-day precision were adequate. The effect of PCV was significant and higher results with lower PCV were observed.

The correlations between capillary and venous 3-HB and reference 3-HB were r=0.48 and r=0.59, respectively. Mean differences between capillary and venous 3-HB and reference method were 0.05 (±0.57) and -0.07 (±0.79) respectively; within-run precision was adequate.

Our results show that both GC and BE are not sufficiently accurate and safe for clinical use in dogs.