

How to Identify the Cause of Polydipsia / Polyuria in the Horse

ANDY E DURHAM BSc.BVSc.CertEP.DEIM.DipECEIM.MRCVS, RCVS and European Specialist in Equine Internal Medicine, Liphook Equine Hospital, UK

- 1) **Confirm Polydipsia** (*probable* if drinking >7.5% BWT daily; *definite* if drinking >10% BWT daily).
Optional: verify polyuria (*probable* if urinating > 3% BWT daily; *definite* if drinking >5% BWT daily)
- 2) **Check Blood:**
 - a) Urea, creatinine, hypercalcaemia (*chronic renal failure?*)
 - b) Hyperglycaemia (*diabetes mellitus?*)
 - c) ACTH (*PPID?*)
- 3) **Check Urine:**
 - a) SG <1.008 (*psychogenic polydipsia, diabetes insipidus?*)
 - b) SG 1.008-1.014 (*chronic renal failure?*)
 - c) SG > 1.020 – polydipsia might be intermittent (*psychogenic polydipsia?*)
 - d) Glucose+ (*diabetes mellitus*, alpha-2 sedatives, stress)
- 4) **Test for Renal Concentrating Ability (Modified water deprivation test)**
Aims to differentiate *psychogenic polydipsia* from *diabetes insipidus*
 - a) Only perform test if SG < 1.020; normal serum creatinine, no dehydration
 - b) Weigh horse if possible
 - c) Allow access to restricted water (e.g. offer 0.5% BWT as water q 3 hours)
 - d) Re-weigh if possible and check urine SG and serum creatinine q 6 hours
 - e) Stop test when:
 - i) Urine SG > 1.020 (confirms renal concentrating ability and therefore *psychogenic polydipsia*)
 - ii) Concerns of harm (probable *diabetes insipidus*)
 - Increased serum creatinine
 - 5% decrease in bodyweight
 - Signs of dehydration
- 5) **Tests for Diabetes Insipidus**
 - a) Measure serum vasopressin at end of water deprivation period
 - i) Vasopressin > 5 pmol/L – normal vasopressin secretion
 - ii) Vasopressin < 5 pmol/L – *central diabetes insipidus*
 - b) Vasopressin response test. Inject 0.05 micrograms/kg desmopressin acetate iv and measure urine SG over 24 hours
 - i) Urine SG > 1.020 (normal response to vasopressin)
 - ii) Urine SG < 1.020 (*nephrogenic diabetes insipidus*)