European Journal of Molecular & Clinical Medicine

ISSN 2515-8260 Volume 09, Issue 08, 2014

Assessing Milk from CWD-Lactating Deer for Infectious Prions

Willingham K; McNulty E; Anderson K; Hayes-Klug J; Nalls A; Mathiason C

Abstract

Transmissible spongiform encephalopathies (TSEs), or prions, cause a fatal neurodegenerative disease affecting mammals including bovine spongiform encephalopathy (BSE) in cattle, scrapie in sheep, variant Creutzfeldt-Jakob disease in humans and chronic wasting disease (CWD) in deer, elk and moose. CWD, the only prion disease to infect a native free-ranging population, has now been detected in 22 American states, 2 Canadian provinces and South Korea. While horizontal transmission is credited for much of the spread of CWD, few studies have monitored the potenti

al for vertical/maternal transmission with an emphasis on lactation. Using a small, polyestrous cervid– the Reeves' muntjac deer– we are addressing this issue by supplementing naïve Reeve' s muntjac fawns (n=5) with milk collected from CWD-inoculated, pre-clinical and clinical muntjac doe. Blood, saliva, feces, urine and lymphoid biopsies will be collected from milk-exposed fawns at 10d, 21d, 40d, 3mo, 6mo, 12 and 18 mo pi to aid in CWD diagnosis. Similar samples, with the addition of mammary biopsy, will be collected from each mother doe at 3 months intervals to monitor CWD status. CWD fawn and mother doe CWD status will be monitored by immunohistochemistry, real time quaking induced conversion assay (RT-QuIC), protein misfolding cyclic amplification (PMCA) and clinical disease progression

Keywords: