

Natural history, outcomes and mortality associations of calciphylaxis: Update from the UK calciphylaxis registry

Dr Rajkumar Chinnadurai¹, Dr Abby Huckle¹, Dr Janet Hegarty¹, Prof Philip Kalra¹, Dr Smeeta Sinha¹

¹*Salford Royal NHS Foundation Trust, Salford, United Kingdom*

Background

Calcific uremic arteriolopathy (CUA), or calciphylaxis is a rare but very serious condition associated with significant mortality. The disease develops as a result of arteriolar calcification within the skin and is observed primarily in patients with end-stage renal disease. The annual mortality rate is reported to be as high as 55% in patients with CUA (US data). The current management strategy of this condition is essentially a multifaceted approach (medical therapy, increase in dialysis sessions, wound care and surgery). Data from country-based registries have been an invaluable resource and have enabled improved understanding of the natural history and management of this condition.

Objectives

This study aims to investigate the management strategies and outcome of patients with calciphylaxis registered in the UK calciphylaxis study (UKCS). In addition, the study also compares the outcomes and the strength of association of calciphylaxis in dialysis patients with a matched group of patients receiving dialysis without calciphylaxis.

Methods

This cross-sectional study was conducted using data from 59 patients registered in the UKCS since 2012. The initial analysis included a description of the baseline characteristics, management strategies and outcomes with follow-up until January 2018. Further analysis included a comparison of the mortality outcome of the UKCS patients receiving dialysis with a 1:2 propensity score matched cohort of dialysis patients with no calciphylaxis from the Salford Kidney Study (SKS) (39:78). Cox-regression analysis and Kaplan-Meier estimates were used to study the strength of association between calciphylaxis and all-cause mortality.

Results

The median age of the UKCS cohort was 59 years, with predominance of females (58%) and Caucasian ethnicity (95%). 63% of patients were diabetic and 66% were receiving haemodialysis at study entry. The skin lesions were mostly distributed in lower extremities (50%). Sodium thiosulphate and calcimimetics (cinacalcet) were the most widely used management strategies, with no significant benefit apparent considering these therapies in isolation. 59.3% of the cohort died in the follow up period with median follow-up of 6.5 months. Complete wound healing was noted in 17% and bacteraemia was reported in 29% of patients. In a comparative analysis with the matched dialysis patients, the presence of calciphylaxis showed a strong independent association with all-cause mortality in a multivariable cox-regression model (HR 7.96; 95% CI:4.1-15.4; $p < 0.001$). A Kaplan-Meier curve also demonstrated the poor survival outcome in the presence of calciphylaxis (Log-rank; p -value < 0.001) (Figure).

Conclusions

Despite a small sample size due to being a rare condition, this UK wide registry-based study confirms that calciphylaxis is a strong and independent risk factor associated with all-cause mortality and that no significant benefit have as yet been observed with any individual treatment modality. Until further evidence is available, a multifaceted approach would be the appropriate treatment strategy in the management of this serious condition.