Patients and Methods

This retrospective descriptive study included all consecutive patients with calciphylaxis who received sodium thiosulfate and were referred between January 2008 and April 2017 to the Nephrology Department of Taaoee Hospital (Papeete, Tahiti, French Polynesia), the University Hospital Toulouse, and Saint-Exupery Clinic (both in Toulouse, South West France). Patients’ data regarding sodium thiosulfate intake were identified through records in the pharmacology units. To be included in this study, patients fulfilled the following criteria: (1) biopsy-proven calciphylaxis or skin lesions highly suggestive of calciphylaxis and without alternative diagnosis, and (2) had received sodium thiosulfate infusions. Patients with severe peripheral arterial disease and acute distal ischemia ($n=3$), arteriovenous fistula-related hand ischemia ($n=2$), or an alternative diagnosis (pyoderma gangrenosum $n=1$; fasciitis $n=4$) were excluded from the study. Patients with several flares of calciphylaxis had only the first episode recorded. The study was conducted in accordance with the ethical standard of the Declaration of Helsinki and the local ethics guidelines.

Data Collection

When available, the following parameters were collected: age at the time of dialysis initiation, at the onset of calciphylaxis, and at the last follow-up, the presence of hypertension and/or diabetes mellitus, body mass index, tobacco use, medications (vitamin K antagonists, calcium salts, vitamin D, calcimimetics, and phosphorus-binding agents), antiplatelet agents, and subcutaneous injections (heparin). Data from the following biological tests were also collected: hemoglobin, serum urea, creatinine, calcium, phosphorus, parathormone, vitamin D, C-reactive protein (CRP), and albumin. Treatments received (surgical or chemical debridement, dialysis intensification) and outcomes were also collected. The following parts of the body were defined as cutaneous areas: arm, lower leg, thigh, chest, abdomen, buttock, head, and visceral organ. When available, skin biopsies were analyzed after periodic Schiff acid, hematoxylin and eosin, and von Kossa staining.

When used, topical cerium nitrate-silver sulfadiazine was applied daily until complete healing.
Statistical Analyses

The data are described as percentages for discrete variables and as medians (with interquartile range) for continuous variables. Fisher’s exact test (discrete variables) and Student’s or the Mann-Whitney test (continuous variables), respectively, were used to make comparisons between groups. All statistical tests were two-sided, with \( p < 0.05 \) indicating statistical significance. Kaplan-Meier plots were used to estimate survival. Cox regression models were used to identify factors associated with mortality within 12 months. All parameters associated with survival with \( p < 0.15 \) in the univariate analyses (log-rank tests) were included within the multivariate Cox regression model. Results were expressed as hazard ratios with 95% confidence intervals. Statistical analyses were performed using XLSTAT (Addinsoft, Paris, France) packages.