Home Urine Sampling as a Research Methodology in Longitudinal Biological Research Studies in Children with Cancer - Patient, Parent and Scientific Perspectives

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Background/Objectives: Sequential sampling is essential to identify longitudinal changes in biomarkers, especially considering in vivo studies collecting fluids and liquid biopsies from children with cancer. Children receiving chemotherapy rarely spend prolonged periods of time admitted to hospital, instead attending hospital frequently for both treatment and management of side effects, impacting on quality of life. Asking for visits solely for the collection of research samples is therefore unfair and unethical. Missing sampling points across a cohort may however allow changes in biomarkers to go undetected, missing events such as late rise or peak changes. Home urine sampling offers a methodology to allow the capture of these research samples without hospital attendance.

Design/Methods: From a cohort of 60 paediatric cancer patients recruited to a longitudinal research study exploring changes in urinary and serum markers of nephrotoxicity, perspectives were gained from patients about the utility and acceptability of obtaining urine sampling at home. The stability of the biomarkers of interest was investigated. Published literature was reviewed for similar qualitative and quantitative data.

Results: Home urine sampling is acceptable to patients and their families, including temporary storage and subsequent dispatch and transport to hospital. Parents report feeling empowered and as though they were participating actively in research to the potential benefit of future patients. Stability data in the biomarkers of interest was acceptable.

Conclusion: Home urine sampling offers a simple methodology to increase the number of time points at which urinary research samples can be collected, to give a more complete data set for longitudinal, observational biological studies. This will reduce the potential to miss significant changes in the levels of biomarkers of interest. Furthermore, it is a method of sample collection that is acceptable to both patients and their families, and has received research ethics committee approval for our study.