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Environmentally sustainable renal care- A qualitative scoping review

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Objectives : Long term consequences of Chronic Kidney disease(CKD) include renal replacement therapy(RRT) in the form of hemodialysis (HD)/peritoneal dialysis or kidney transplantation. Global requirement of HD has reached to 600 million/year and patients are increasing at the rate of 7% annually. This is highly detrimental to the environment considering HD consumes 265m³/year of water every year along with generation of plastic waste, adding to carbon foot print. Hence "Green dialysis" has become a necessity of current times, and this review addresses the ways to promote sustainable methods of renal care.

Methods : Databases searched were PubMed and Cochrane with proper key words and MeSh terms for the articles based on 'green dialysis'. Total 14 articles were found which were thoroughly scrutinised. Qualitative analysis was performed to explore ways towards achieving sustainable green dialysis in healthcare.

Results : Out of 14 studies, only 5 were original research articles, highlighting the need for more research in this emerging field. Majority articles focused on 3R (Reduce, Reuse and Recycle) as effective measures for promoting green dialysis. Reduce: · Adopting healthy lifestyle reduces the risk of kidney disease and requirement of dialysis. · Delaying dialysis till GFR reaches 5-6ml/minute per 1.73m²-saving 6000L of water/month and with incremental dialysis, 2000L water/patient saved annually. · Newer RO system reduces water waste upto 20% than traditional one. Reuse: · RO water to be reused in agriculture, aquaponics and horticulture. · Zero liquid policy- ultrafiltration, evaporation and electrodeiodinization. Recycling: · Recycling of plastic and audit of waste management, recycling of RO water Other steps: Economical and political reforms: environmental license by dialysis units.

Conclusions : The 3-R principle (Reduce, Reuse and Recycle) is an effective strategy for green dialysis. Various environmental, educational and political reforms need to be advocated and implemented in comprehensive manner for environmental sustainability while providing optimal care to patients requiring hemodialysis.