ECONOMIC EVALUATION OF THE EFFECTS OF DIETARY PROTEIN RESTRICTION ON THE PROGRESSION OF CHRONIC RENAL DISEASE

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OBJECTIVE: Reducing protein intake of patients with chronic renal disease (CRD) significantly reduces the number of patients entering end-stage renal disease (ESRD). We conducted an economic evaluation of dietary protein restriction on the progression of CRD. METHODS: We conducted a Cost-Benefit Analysis in the perspective of the Italian National Health Service (NHS) based on data from Modification in Diet in Renal Disease (MDRD) Study. In the MDRD, patients with a glomerular filtration rates (GFR) of 25-55 ml/min/1.73m2 were randomly assigned to usual protein (1.3g/Kg/die) or low protein (0.58g/Kg/die) diet groups. It is expected that a patient would receive a protein-restricted diet when his/her GFR falls under 25 ml/min/1.73m2 and to start dialysis when his/her GFR is 5ml/min/1.73m2. We quantified cost of diet with a protein product (2000Kcal/die, 40g/die of protein) and the assistance of a nutritionist (once every two months) and cost of dialysis using NHS tariffs. Data were applied to a 7 years time horizon. We conducted a one-way sensitivity analysis varying costs and benefits by ±10% and applied a 3% rate of discount. RESULTS: Applying the mean decline of GFR obtained by the MDRD study we estimated patients receiving a low protein intake to start dialysis in 7 years. Patients with a usual protein diet would wait dialysis in 5 years. We estimated a cost of 5882€ for 7 years low protein diet with aprotinin products. This treatment would delay by 2 years dialysis initiation with an estimated saving to the NHS of 43,268€. We obtained a benefit of 36,386€ per patient. These results were robust in one-way sensitivity analyses. CONCLUSION: Using MDRD Study data, a low protein controlled diet, in nephropatic patients, could delay the degeneration of nephropathy extending the renal survival. This involves significative economic benefits.