PIH20 cost-effectiveness of supplemental N-3 in total parenteral nutrition therapy in the Italian, French, German and UK context: a discrete event simulation model

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PIH20

COST-EFFECTIVENESS OF SUPPLEMENTAL N-3 IN TOTAL PARENTERAL NUTRITION THERAPY IN THE ITALIAN, FRENCH, GERMAN AND UK CONTEXT: A DISCRETE EVENT SIMULATION MODEL

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OBJECTIVES: A very recent Meta-Analysis shows that the addition of Omega-3 fatty acid in standard Total Parenteral Nutrition (TPN) is associated with reductions in infection rate, ICU, and overall lengths of stay (LOSs) for both Intensive Care Unit (ICU) and elective surgery patients. Aim of this study is the CE analysis of its use in these patient populations, as compared to standard lipid emulsions. **METHODS:** Within a Discrete Event Simulation (DES) scheme, a patient-level simulation model was developed, with the inclusion of baseline outcomes rates from the Italian ICU patient population and from published literature; comparative efficacy data for standard and Omega-3 fatty acids-based regimens from the meta-analysis of published randomized clinical trials (conducted on 23 studies with a total of 1502 patients), and country-specific cost data. Clinical outcomes included in the model are death rates, nosocomial infection rates, and ICU/hospital LOSs. Costs are referred to Italian, French German and UK health care systems. Probabilistic and deterministic sensitivity analyses are undertaken to test results' reliability. **RESULTS:** Omega-3 fat emulsions emerged as more effective on average than standard TPN both in ICU and in non-ICU patients: in all the four national contexts here considered, reduced mortality rates, infection rates, and overall LOSs yield a lower total cost per patient. Treatment costs are completely offset by the reduction in hospital stay costs and antibiotic costs. Sensitivity analyses confirmed the robustness of these findings. **CONCLUSIONS:** These results indicate that the addition of Omega-3 to standard TPN is expected to improve clinical outcomes and concurrently give a saving for Italian, French, German and UK hospitals.