Is cardiac telerehabilitation cost-efficient in the longterm? The Telerehab III 2-year follow-up study

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Abstract

Background: Cardiac telerehabilitation has been proven effective and cost-efficient as an adjunct to conventional center-based cardiac rehabilitation in the medium-term. Data on the persistence of both its clinical benefits and cost savings in the long-term however, are scarce. One of the purposes of the Telerehab III follow-up study was to evaluate the long-term cost-efficiency of a comprehensive, internet-based and patient-tailored telerehabilitation program for cardiac patients.

Methods: Telerehab III was a multi-center, randomized controlled trial comprising 140 cardiac rehabilitation patients. These patients were randomized (1:1) to a 24-week telerehabilitation program in addition to center-based cardiac rehabilitation (intervention group) or to center-based cardiac rehabilitation alone (control group). 2 years after Telerehab III study termination, the incremental cost-effectiveness ratio (ICER = [Cost intervention group – Cost control group]/[Effectiveness intervention group-Effectiveness control group]) was calculated to assess long-term cost-efficiency. The costs included in the calculation were both intervention and healthcare resource costs. Intervention costs were those associated with delivering the center-based cardiac rehabiliattion and telerehabilitation program. INAMI/RIZIV's nomenclature-based tariffs were employed to quantify the center-based cardiac rehabilitation costs. Telerehabilitation cost estimates were derived from equipment and consumable expenditure records. Healthcare costs comprised costs due to cardiovascular readmissions, specialist follow-up visits and associated diagnostics. These were derived from the invoices of the hospitals' financial departments and INAMI/RIZIV's nomenclature-based tariffs, respectively. The incremental effectiveness was defined as the difference in average quality adjusted life years (QALYs) change between the intervention and control group. QALYs were derived from patient self-reported EQ-5D questionnaire scores.

Results: In the intervention group, the total average cost per patient was 3147 € ± 337 €; their utility score deteriorated (average ΔQALY - 0.02). In the control group, the total average cost per patient was 3682 € ± 386 €, their utility score also deteriorated (average ΔQALY - 0.07). The ratio of the overall incremental average cost per patient (- 535 €) and the incremental QALYs (0.05 QALYs) resulted in an ICER of - 10,700 €/QALY.

Conclusions: This cost-utility analysis showed that the addition of a 24-week cardiac telerehabibiltation program to center-based cardiac rehabilitation remained cost-efficient compared to center-based cardiac rehabilitation alone 2 years after study termination. These findings have high clinical and public health policy impact. They encourage healthcare providers and policy makers, charged with deciding how limited healthcare resources would best be allocated, to explore how telemedical care could be implemented in current practice to improve long-term benefits and optimize cost-efficiency.