

Hybrid cardiac rehabilitation program as a potential enhancer of adherence to cardiac rehabilitation in smoking patients with coronary heart disease - a retrospective single-centre analysis

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Funding Acknowledgements: Type of funding sources: None.

Cardiac rehabilitation (CR) has well known beneficial effects on physical capacity, health-related quality of life, morbidity and mortality following an acute cardiac event. It is also known that smoking status is a powerful predictor of recurrent cardiovascular disease events. However, it has been noted that smoker patients may be less likely to access or complete CR.

The aim of this study was to determine the levels of anxiety and depression and its improvement, depending on the smoking status of patients with coronary artery disease (CAD) on phase 2 of the Cardiac Rehabilitation Program (CRP). Additionally, we intend to investigate the mental health impact on smoker patients" group in conventional CR versus telemonitored CR.

A retrospective study was conducted and patients in CRP between 2017 and 2020 were included. Patient selection and information collection were obtained through medical records. The outcomes of anxiety and depression were evaluated through the Hospital Anxiety and Depression Scale (HADS). Patients were divided into two groups: group 1 for non-smokers or ex-smokers and group 2 for smokers. For group 2 patients, a sub-analysis was performed for patients following the conventional CR versus the telemonitored CR, with the use of MOVIDA mobile application. Variables were analysed in the beginning (T0) and in the end (T1) of phase 2, around 3 months after. Group comparisons tests and statistical analysis were performed using SPSS software v25.0. A p-value less than 0.05 is statistically significant.

We analysed 107 patients, which 93 of these were assiduous and 69 concluded the phase 2 of CRP: 39 patients in group 1 and 30 patients in group 2. Two groups have similar baseline characteristics, except for the higher presence of diabetes ($p = 0.02$) in group 1. It was noted an improvement in both anxiety and depression items for group 1 ($p < 0.01$ for both), but only for anxiety item for group 2 ($p = 0.03$). In sub-group analysis, we observed no improvement for smoking patients following the conventional CR for both anxiety and depression items ($p = 0.60$ and $p = 0.71$, respectively) versus a significant difference in telemonitored CR patients ($p = 0.02$ and $p = 0.04$).

We hypothesise that, when compared to conventional CR, cardiac telemonitored exercise using modern communication methods may result in an improved mental health state among smoking patients, which can lead to a better adherence for CRP. Further studies including more patients and phase 3 of CRP are needed to confirm these results.