Digital treatment of back pain – long-term results of the Rise-uP trial

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Background

Non-specific low back pain (NLBP) causes an enormus burden to patients and tremendous costs for health care systems worldwide. Treatments frequently are not oriented to guidelines and about 65% of patients with acute or subacute NLBP still report pain after 12 months. The cluster-randomized controlled Rise-uP trial aims to establish a General Practitioner (GP) centered back pain treatment which includes four digital elements: (i) electronic case report form (eCRF), (ii) a treatment algorithm for guideline-based clinical decision making of GPs, (iii) teleconsultation between GPs and pain specialists for patients at risk for development of chronic back pain, and (iv) the multidisciplinary Kaia back pain app. After superiority of the Rise-uP concept compared to standard of care has been shown in a three months follow-up the long-term results of the Rise-uP trial (6- and 12 months follow-up) are reported here.

Method

111 GPs throughout Bavaria were randomized either to the Rise-uP intervention group (IG) or the control group (CG). Rise-uP patients were treated according to the guideline-oriented Rise-uP treatment algorithm. Standard of care was applied to the CG patients with consideration given to the “National guideline for the treatment of non-specific back pain”. Pain ratings (primary outcome) as well as psychological measures (anxiety, depression, stress), functional ability and physical and mental wellbeing (secondary outcomes) were assessed at the beginning of the treatment and at a 3-, 6- and 12 months follow-up.

Results

In total, 1245 patients (IG: 933; CG: 312) with NLBP were included into the study. The Rise-uP group showed a significant stronger pain reduction compared to the control group after 3 months (IG: M=-33% vs. CG: M=-14%), 6 months (IG: -39% vs. CG: -21%) and after 12 months (IG: -46% vs. CG: -24%). The Rise-uP group was also superior in secondary outcomes (anxiety, depression, stress, functional ability and wellbeing). Interestingly, patients with a high risk of developing chronic pain who received a teleconsultation had a stronger pain reduction (-47%) compared to high-risk patients who did not receive a teleconsultation (-36%) after 12 months. This effect seems to be mediated by a higher Kaia usage in patients who had received a teleconsultation compared to those who did not.

Discussion

Our results show superiority of the innovative digital treatment algorithm realized in Rise-uP in a long-term observation period of one year, even though the CG also had received relevant active treatment by their GPs. We further show the importance of early risk determination: High-risk patients for chronic pain, who receive a teleconsultation and show enhanced app usage especially benefit from the Rise-uP approach. This provides clear evidence that digital treatment may be a promising tool to sustainably improve the outcome of NLBP treatment and offers potential to bridge treatment in times of social distancing.

Fig. 1: Illustration of the elements of the Kaia back pain app.

Fig. 2: Means (SE) of the pain intensity index (A) and percentage in pain reduction (B) over time separately for both groups.

Fig. 3: Changes in functional ability, wellbeing as well as psychopathological symptoms from baseline to 12 months follow-up.

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