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Letters

Exercise Intervention to Improve Functional Capacity in Older Adults After Acute Coronary Syndrome

More than one-half of patients admitted for acute coronary syndrome (ACS) are age ≥70 years. Mobility limitations and sedentary behavior are common in older ACS patients and contribute to high risk of recurrence and mortality (1). Although older ACS patients may benefit the most from participation in exercise-based cardiac rehabilitation/secondary prevention programs (CR/SP), they are less likely to participate in such programs (2).

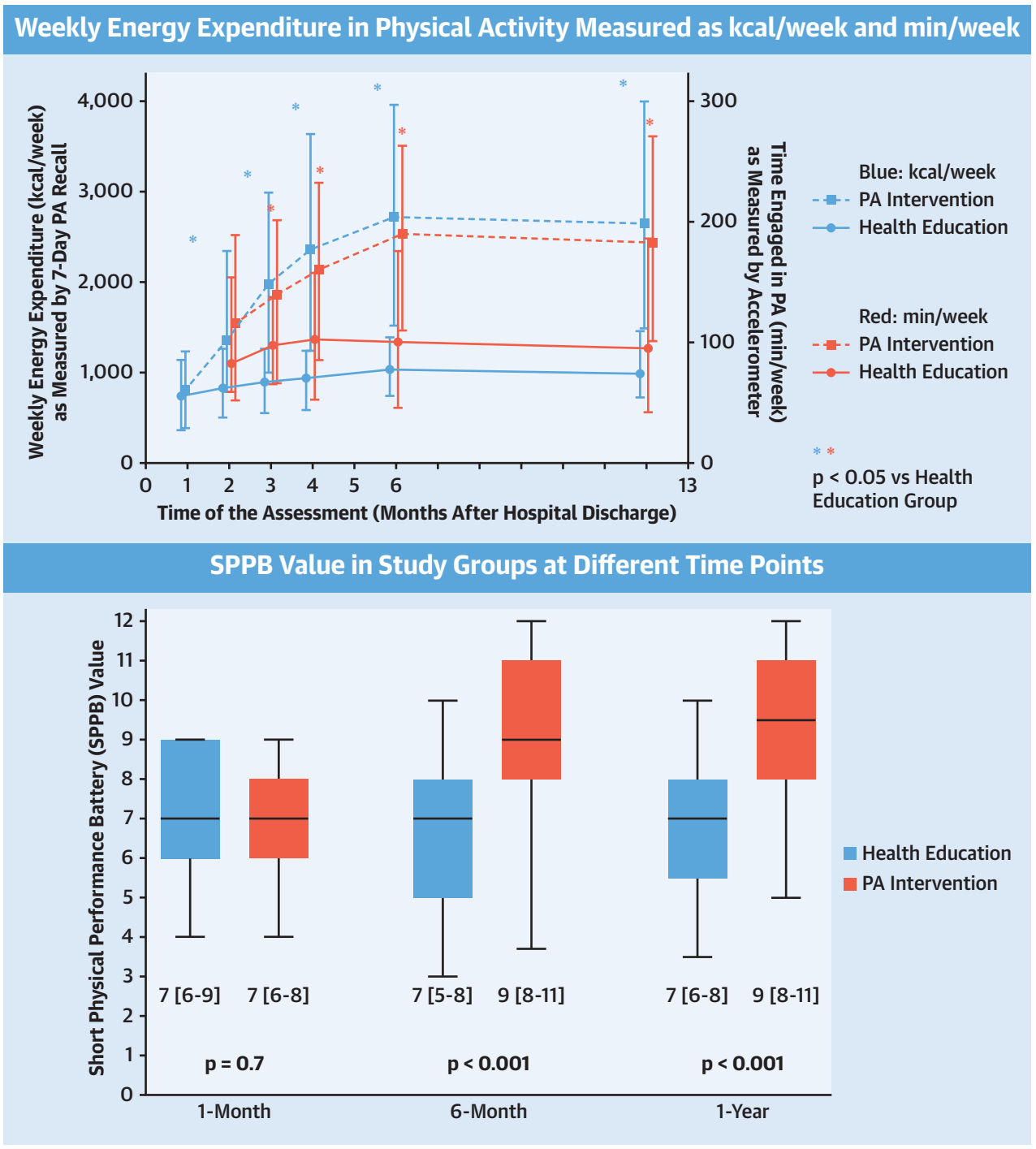
Whether an early, individualized, and low-cost physical activity (PA) intervention including a few supervised sessions and a home-based program might be feasible and effective for improving functional capacity in this high-risk and undertreated population is unknown.

The HULK (Physical Activity Intervention for Patients With Reduced Physical Performance After Acute Coronary Syndrome; NCT03021044) trial is a multicenter, randomized clinical trial. A detailed study outline and statistical plan have been previously published (3). Inclusion criteria were age ≥70 years, hospitalization for ACS, and Short Physical Performance Battery (SPPB) score between 4 and 9 at the inclusion visit (30 ± 5 days after hospital discharge). The SPPB is a scale that combines gait speed, chair stand, and balance tests. It ranges from 0 (worst) to 12 (best) and has predictive validity for mortality (4). Participants were randomized to usual care and health education (control group) or usual care and PA intervention (intervention group). The control group received a 20-min session and a detailed brochure stressing the importance of PA in cardiovascular health. The PA intervention consisted of four supervised sessions (1, 2, 3, and 4 months after hospital discharge), combined with an individualized home-based PA program. Center-based sessions included a moderate standardized treadmill-walk, strength, and balance exercises (3). After the practice sessions, patients received a tailored PA home program (3). Weekly energy expenditure from PA was determined by a self-reported 7-day physical activity recall (kcal/week), and objectively measured by wearing an accelerometer (min/week). The primary endpoint was the 6-month SPPB. Secondary endpoints were 1-year SPPB and time engaged in PA.

From January 2017 to April 2018, 235 patients were randomized (n = 117, control group; n = 118, intervention group). The median age was 76 (interquartile range [IQR]: 73 to 81) years, and 23% were female. Before the hospitalization, light and moderate-intensive PA was performed by 66% and 14% of patients, respectively. Baseline characteristics, as well as baseline SPPB value (**Figure 1**), did not differ between groups. The adherence rates of the PA intervention group to the 1-, 2-, 3-, and 4-month scheduled supervised sessions were 100%, 89%, 85%, and 72%, respectively. The time engaged in PA progressively and significantly increased in the intervention group (**Figure 1**). At 6 months, the SPPB score was significantly higher in the intervention group (median: 9 [IQR: 8 to 11] vs. 7 [IQR: 5 to 8]; $p < 0.001$) (**Figure 1**). This improvement was supported by a significant increase in SPPB components of walking and chair rise (balance remained unchanged). The number of patients showing an increase of at least 1 point in SPPB score was 86 (74%) in the intervention group versus 46 (40%) in the control group ($p < 0.001$). The SPPB increase was maintained at the 1-year visit (**Figure 1**) and independent of sex and educational status.

Typical CR/SP includes 3 weekly supervised exercise and educational sessions for 12 weeks. Despite the health benefits associated with these interventions, few eligible patients are referred or complete such programs (1). Our novel PA intervention was designed to address this issue. The attendance rate was high (72% [95% confidence interval: 64% to 80%]). The average weekly energy expenditure from PA in the intervention group increased 3.4 times, and SPPB score showed a mean increment of 2.0 points. This finding is notable given that an SPPB improvement of 1.0 point is generally considered a substantial clinically meaningful change (2). In addition, despite the absence

FIGURE 1 Weekly Energy Expenditure in PA and SPPB Scores Across Study Groups



The **boxes** represent the interquartile range, the **horizontal lines** are the median, and the **whiskers** are the 5% to 95% range. PA = physical activity; SPPB = Short Physical Performance Battery.

of supervised sessions after the sixth month, the achievements were maintained until 1-year visit. If confirmed in future studies, our PA intervention model might help to mitigate the challenges related to limited health care resources and might increase the number of older adults receiving CR/SP.

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On the True Prevalence of Pulmonary Embolism in Patients Hospitalized for a First Syncopal Event

On the basis of the low observed prevalence of pulmonary embolism (PE) in a cohort of patients with syncope (BASEL IX [Basel Syncope Evaluation]; NCT01548352), Badertscher et al. (1) conclude that a systematic search for PE is not indicated. This conclusion seems in contrast to the results of 2 recent studies (2,3) that showed a high prevalence (17% and 11%, respectively) of clinically important PE among patients hospitalized for (a first) syncope at high probability of PE. We believe that these seemingly contradictory findings are caused by profound differences between the designs of the studies: BASEL IX applied a retrospective analysis on already collected data, which was not aimed at detecting or excluding PE confidently. The other 2 studies collected this relevant information prospectively. Not surprisingly, therefore, BASEL IX had diagnostic imaging in <14% of patients at a high probability of PE with only clinical follow-up in the remaining 86%. In contrast, in the 2 prospective studies, all patients at high probability of PE underwent diagnostic imaging.

Interestingly, among the 785 patients in BASEL IX at high probability of PE, PE was confirmed in 19 (18%) of the 107 patients who had diagnostic imaging. It can be assumed that in the remaining patients, the prevalence of PE would be similar because physician talent is unlikely to be better than validated clinical scores to predict the presence of PE. Also, of the 254 patients who were hospitalized for a first syncopal event (but probability of PE not reported), PE was confirmed in 11 (29%) of the 38 who had diagnostic imaging.

Given the high prevalence of PE in the subgroup of patients in BASEL IX who had diagnostic imaging, as well as on the results of the 2 prospective studies, we believe that diagnostic imaging is strongly indicated in all hospitalized patients with a first episode of syncope and a high clinical probability for PE. Not doing so may unnecessarily expose a considerable number of these patients to the hazards of recurrent symptomatic PE.

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