Meta-analysis examining interventions aimed at reducing sedentary lifestyle in poststroke patients

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Commentary on: Interventions for reducing sedentary behaviour in people with stroke (Review). Cochrane Database of Systematic Review 2021, 6: 1 – 19.

Implications for practice and research

- Loosely related to increasing physical activity is reducing sedentary time.
- The impact of stroke may symbolize a limitation in physical activities.
- Although the level of physical activity may act as a buffer to a better quality of life, sedentary behaviour is not associated with reduced or increased mortality in people affected with stroke.
- Whilst no benefits were found in relation to mortality rate, further studies are required to bridge clinical gaps in this area.

Context

Sedentary behavior is associated with health risks[1] such as heart attack, stroke, type 2 diabetes, and adiposity. Due to the perceived benefits of physical activity, both World Health Organisation and the Department of Health in England guidelines recommend replacing sedentary life with physical activity[2]. Stroke is one of the leading causes of disability worldwide and depending on the severity of the medical condition, stroke survivors often engage in limited physical activities on a day-to-day basis[3]. Although several studies have identified the negative impact of sedentary behaviour on health and wellbeing, its association with mortality is not well documented by scholars[1,2]. This systematic review examines whether interventions designed to reduce sedentary behaviour after stroke can reduce the risk of death or secondary vascular events, modify cardiovascular risk, and reduce sedentary behaviour among stroke survivors[1].

Methods:

A pragmatic approach was used by the researchers to systematically search the Cochrane Stroke Trials Register, CENTRAL, MEDLINE, EMBASE, CINAHL, Psych Info, Conference Proceedings Citation Index, Pedro, and registers of ongoing trials in December 2019. The authors retrieved a final selection of 10 studies with 753 post stroke people on admission or at home[1]. Majority of the participants were able to walk and the duration of interventions ranged from 6 weeks to 18 months covering patients on exercise alone (n=1), exercise combined with education and coaching (n=1), physical activity alone (n=1) or in combination with mobile phone app (n=1), several lifestyle interventions including physical activity (n=4), physical activity and inpatient physiotherapy (n=1) and a study aimed at breaking up long periods of sitting[1]. Two independent reviewers selected the studies and performed 'Risk of bias' assessments. A meta-analysis approach was used to combine studies that were considered to be sufficiently similar using Review Manager 5. The researchers used random effects meta-analytic models to calculate measures of effect at the end of interventions and follow-up period for each outcome measure and assessed the certainty of the evidence with GRADE methodology[1].

Findings:

The evidence from this systematic review showed that interventions to reduce sedentary behaviour after stroke do not increase or reduce mortality rate, cardiovascular events, falls or the length of time spent sitting down[1]. Nevertheless,

there may be some potential benefits in encouraging post-stroke patients to sit less based on individual risk assessment. The authors identified that stroke survivors typically sit for more than 10 hours a day, hence, there is a need to reduce or fragment sedentary time[1].

Meta analysis as a statistical method for combining results of several trial to produce a summary of effect can be affected by various factors such as heterogeneity between studies, publication bias or quality of the included studies. Consequently, the risk of bias was assessed to avoid a misleading interpretation. However, due to the nature of the study, the risk of bias was high in all the studies.

Commentary:
The health consequences of stroke can be compounded by lack of physical activity. Although several empirical studies on the impact of physical activity on health have shown positive outcomes[1-3], this systematic review[1] based meta-analysis of interventions to reduce sedentary behaviour did not found increase or reduce death rate or increase or reduction in the amount of sedentary behaviour time. A key importance of this systematic review to future practice is the recognition and identification of areas for further study.

Whilst lack of exercise may not greatly reduce the mortality rate associated with stroke, there is a need to advance current practice beyond clinical interventions in this high-risk group of people. Arguably not everybody with sedentary lifestyle will adversely be affected at the same level probably due to protective social factors such as social support, self-efficacy or mitigating circumstances like individual environmental settings in the house, education, or access to medical care[2-3].

The limitations of this systematic review include very few studies have examined this phenomenon, the available evidence is restricted to mobile post-stroke patients and most of the studies were conducted for a short term which may not reflect long-term changes in the risk of illness and death[1].

Stroke as a major cause of disability continues to receive a lot of attention from the healthcare practitioners and policy makers due to its impact on individuals, family, and healthcare cost. Therefore, regardless of the inconclusive findings and the limitations of this study, sedentary behaviour research in stroke seems important and merit further investigation. This research will need to consider a long-term study which includes immobile stroke survivors.

References

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