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Clinical Research

Clinical Services - Physiotherapy

TITLE	A Pilot Evaluation of the Efficacy of an Elderly Falls Prevention Programme at St. Camillus' Hospital, Limerick
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INTRODUCTION

Falls and their consequences are prevalent and potentially debilitating events for older individuals. Amongst community dwelling elderly, it is estimated that a lifetime cumulative incidence of falls is between 25% and 40%.¹ Falls may expedite a myriad of physical and psychological complications as well as premature admission to residential care.² Additionally, societal financial costs related to elderly falls can be substantial.³

While there is evidence to support the efficacy of a multifactorial, multidisciplinary intervention to reduce falls in an elderly population,⁴ the effectiveness of "exercise only" falls prevention programmes remains ambiguous. A systematic review of the relevant literature found that while such programmes may have a positive impact on reducing risk factors, only 5 of 13 randomised controlled trials (RCTs) investigated showed a statistically significant positive effect on falls reduction.⁵ A review of the published literature since that time has shown continued equivocacy regarding the efficacy of such programmes in reducing falls.

OBJECTIVE

This study examined whether the programme conducted by the Physiotherapy Department in St. Camillus' Hospital, Limerick was effective in improving risk factors for falls and reducing incidence of falls in an elderly population with mobility and balance difficulties. The appraisal of the programme was doubly justified by the paucity of conclusive evidence in this area, and the absence of a prior assessment of the specific programme conducted by St. Camillus' Hospital.

METHODOLOGY

Eight subjects of similar functional ability (based on initial Elderly Mobility Scale values) participated in an 8-week exercise programme to address pre-existing problems with balance and mobility. The intervention programme consisted of a weekly 1-hour exercise class and was conducted by 3 physiotherapists and a care assistant. The class comprised a group warm-up and cool-down, as well as an activity circuit incorporating various stretching, strengthening and balance exercises. Additional functional elements such as carrying items and multi-tasking were also introduced. Subjects were provided with a home exercise plan on completion of the programme. Pre and post intervention assessment was performed using the EMS, Berg Balance Scale (BBS), Biodex Balance System (Biodex), the Short-Form 12 v.2 Health Status Questionnaire (SF-12v2) and a Falls Diary. Intervention effect was ascertained using paired t-tests for parametric data and Wilcoxon t-tests for non-parametric data. Statistical significance was set at $p < 0.05$.



RESULTS

Eight subjects (1 male, 7 female) of average age 82.25 (79-89 years) were recruited (See Table 1).

Table 1 - Subject Details

Subject	Age	Gender	EMS	Presenting Score	Class Complaint	Gait Aid Attendance
1	85	Female	20	Parkinson's Disease	8/8	No Aid
2	81	Female	18	Parkinson's Disease	5/8	No Aid
3	82	Female	16	History of Falls	6/8	1 Walking Stick
4	82	Male	16	Cervical Surgery	7/8	Rollator Frame
5	79	Female	16	History of Falls	7/8	1 Stick
6	78	Female	18	History of Falls	3/8	No Aid
7	82	Female	20	Cerebellar Ataxia	7/8	3-Wheeled Walker
8	89	Female	16	History of Falls	8/8	1 Walking Stick

All subjects were outpatients of the physiotherapy department. Seven subjects completed the study which recorded improvements in all outcome measures with the exception of the Physical Health Summary (PHS) component of the SF-12v2. Improvements in the BBS and EMS were statistically significant ($p = 0.011$, $p = 0.041$ respectively). The BBS also showed evidence of a clinically significant improvement. Details of pre and post intervention values are shown in the Tables 2 and 3 below.

Table 2 - Paired Samples T-Tests (Parametric Data)

Variable	Paired Differences						Sig. (2-tailed)
	Mean	Standard Deviation	Std. Error Mean	95 % CI of the Difference		t	
				Upper	Lower		
EMS	-0.875	0.991	0.350	-1.704	-0.046	-2.497	0.041
BBS	-3.625	2.973	1.051	-6.111	-1.139	-3.449	0.011
PHS	3.000	4.928	1.742	-1.120	7.120	1.722	0.129

CI: Confidence Interval

Table 3 - Wilcoxon T-Tests (Non-Parametric Data)

Variable	Pre-test Median	Post-test Median	Z	Sig. (2-tailed)
Biodex	1.350	1.038	-0.726(a)	0.446
MHS	54.630	56.380	-0.841(b)	0.400
Falls	1.250	0.250	-1.414(a)	0.157

(a) - Based on positive ranks (b) - Based on negative ranks



Attendance was approximately 80%, which compares quite favourably with empirical compliance in similar studies.⁶ Co-morbidity appeared to be the main reason for non-compliance.

CONCLUSIONS

The falls prevention program at St. Camillus' Hospital, Limerick shows a positive trend towards reducing falls and improving fall risk factors in this elderly population. A future study with a larger population and more extensive follow-up is advocated.

REFERENCES

Available on request.