

# Movement Disorder: Post CABG and Role of Physiotherapy

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**Abstract:** *With an increasing neuro degenerative disorders as part of ageing, CABG (Coronary Artery by Pass Surgery) can further fuel the cerebral dysfunctions. This research where (February 2017 to 30<sup>th</sup> September 2019) 2 ½ years follow-up with syndopa and specific physiotherapy on a subject with movement disorder post CABG, With evidence the impact of CABG on movement disorder and specific physiotherapy on QOL were discussed.*

**Keywords:** CABG – Coronary Artery Bypass Grafting, MRI – Magnetic resonance imaging, Mesomorph- QOL – Quality of Life

## 1. Introduction

Neurological disorders are now the leading source of disability globally and Parkinson's disease (P.D) was the fastest growing in prevalence, disability and deaths increase in PD burden might be linked to environmental factors tied to growing industrialization (GBD 2015 & Lancet 2016) including pesticides, solvents metals (Pezzoli et al 2013). In clina the prevalence rates have doubled, U.S by 24% (Savica et al 2016) but Netherland has recorded a substantial decrease (Darweesh et al 2016) Doubling of the P.D between 1990-2016 (Wannevich et al 2018) preventing the disease and improving the quality of those affected by the condition are required (Dorsey et al 2017) increasing physical activities in adulthood and research in understanding the underlying causes and development of new therapies are highly recommended (Tanner et al 2015). (Martin et al 2008) have recorded post operative cognitive dysfunction after cardiac surgery, Heyer et al 1997 have reported cerebral dysfunction after CABG with moderate hypothermia. The incidence of stroke after CABG is 1.4 -3.8% (Stamou et al 2001). Predisposition for intracranial athero sclerosis in Asian populations (Gorelick et al 2008), where as Lee et al 2011 have among 1,367 CBAG subjects using managnetic resonance angiography have concluded stroke was closely associated with cerebral athero sclerosis. This research strives to analyse the role of a PD patient post CABG with specific physiotherapy on his QOL

## 2. Materials & Methodology

### Background Information:

Mr. XXX, aged 77 year's normotensive non diabetic, ectomorph has under gone CABG with long saphenous graft for triple vessel disease in 2000 at Chennai and was continuing his daily routine, but in January 2017 he was found to develop dyskinesia and decreased usage of right upper and lower extremities. He was getting treated with 25mg Syndopa by a neurophysciain. He is getting treated with physiotherapy by the author from Feb 2017 till 20<sup>th</sup> September 2019.

**Aims & Objective** of this original research was to evaluate the efficacy of a P.D patient post CABG specific problems with physiotherapy on his QOL

### O/e

- Ambulant unaided but no swinging of right arms, with decreased swing phase of right knee
- Bilateral hand grip – Good
- Dyskinesia scale → Moderate
- Mesomorph with waist circumference of 90 cm
- Range of motion of both shoulders, cervical spine, painful and restricted beyond 100
- Lower extremities mild rigid and stiff with end range restriction of hips and knees
- Ambulant unaided for short distance but fear of fall there
- Berg balance scale in standing – Moderate
- Transfers self care and ADL he is independent
- With reasonable cognitive functioning and other sense organs were recorded.
- 2017 NMRI has revealed cortical atrophy and multiple hypo intensities of white matter
- Right hemiparesis with hyper tonicity and hyper reflexia but with good motor
- Control, occasional tremor of right leg.

**Provisional diagnosis:** Movement disorder early P.D ? Post CABG

### RX

- Weekly twice physiotherapy for 25-30 minutes from January 2017 till 20th September 2019
- Balance exercises in standing
- Proprioceptive exercises
- Pilates exercises

Sitting, side, supine, half lying, standing postures were used. Air inflated ball of 55cm was used for most of the exercises. Progression of exercises were done based on his heart rate response, mostly done at an intensity of 50-70% of this MHR

### 3. Results and Clinical Prognosis

He was able to do all these above said exercise regime in the floor and with an increased flexibility of this body, his level

of confidence had improved. Reaction time has increased with his movements and his daily routines. He is walking with ease and more steady than before

Table of results on hoehn and yahr staging, UPDRS, Cadence

	Hoehn and Yahr	UPDRS	SD	SE	T	P	Cadence	Dyskinesia from UPDR Scale
Pre	3	28	4.65	2.68	4	<.05	40	3/4
Post	3	17					60	2/4

### 4. Discussion

#### 1. Does CABG influences movement disorders?

Stygall et al 2003 have recorded among 107 subjects who have undergone coronary artery bypass surgery, neuropsychological changes with declining score from 6<sup>th</sup> day changes with declining score from 6<sup>th</sup> day up to 5 years using 11 psychological tests. Meta analysis cognitive outcome following CABG by Cormack et al 2012 from 28 published studies from 2000 to 2010 have recorded neuro cognitive decline. Rosengart et al 2005 has claimed 46% subjects with preoperative cognitive impairment, associated with hypertension, diabetes. Few data available and little consensus regarding the long term consequences of CABG on cognitive function (Mutch et al 2011, Van Djeck et al 2007). **Post CABG, this research subject is partially independent for his ADL, but a decline psychologically were recorded as supported by the above research reports**

#### 2. Is there a role for Physiotherapy on QOL among subjects with Parkinson's disease?

- Cholewa et al 2014 among 109 people with PD stage II of hoehn and yahr have established using UPDRS, that participation in properly planned physiotherapy helps to reduce the symptoms and improve QOL among PD subjects
- Pellisier et al 2000 have recorded that physiotherapy would be more effective by reducing daily life disability than by improving parking symptoms such as brady kinesia or tremor
- Dereli et al 2010 have compared the physiotherapist supervised exercises among 30 subjects with III stage hoehn and yahr P.D subjects on medications for 10 weeks to be more effective in improving QOL
- Beatile et al 2000 in a 8 week of exercises to improve UPDRS, PD 39, to improve QOL among 6 PD subjects. **This research subject with post CABG having developed Parkinson's symptoms was treated along with regular physiotherapy (February 2017- 20<sup>th</sup> September 2019) for 2 ½ years has shown reasonable impact on his QOL as evidenced by the above studies.**

### 5. Conclusion

Dyskinesia, balance disturbances falls leading to dependency are major geriatric scenarios recorded. But specific physiotherapy regime based on patient specific problems can yield good clinical outcome measures as well improve subjects functional means.

**Limitations of this study** were being a single case study, hence further studies in larger sample size of similar subjects, using other exercises variables shall validate findings of this study.

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