ABSTRACT

TITLE

To Assess Cardiovascular Risk in cases of Spinal Cord Injury by screening Impaired Glucose Tolerance and Dyslipidemia – Cross Sectional Study.

AIM / OBJECTIVES

To screen the individuals with spinal cord injury for impaired glucose tolerance and dyslipidemia for early assessment of cardiovascular risk and mortality.

INTRODUCTION

With advances in acute care and management of septicemia, renal failure, pneumonia, Cardio vascular complication is the leading cause of death in cases with Spinal Cord Injury (SCI).

Carbohydrate intolerance, insulin resistance, lipid abnormalities, heart disease and cerebro vascular disease occur prematurely and at higher prevalence in patients with SCI. This is because of metabolic changes, changes in body composition that results from paralysis, loss of lean tissue from denervation, obesity, greater adiposity above and below the neurological level of injury.

Symptoms of diabetes are more often masked and patient may not be aware of symptom of diabetes because of the overlapping of symptoms associated with SCI.

There is disconnection between autonomic circuit and supra spinal control in SCI and Coronary heart disease (CHD) is asymptomatic due to reduced sensory feedback of angina. Physical inactivity increased abdominal fat

promotes insulin resistance and reduces HDL thereby promoting atherosclerosis. In addition to this chronic inflammation, blood pressure irregularities and reduced cardio vascular fitness secondary to SCI further increase the cardio vascular risk.

SUBJECT SELECTION

Sample size: 100 cases of spinal cord injury considered for this study

Subjects will be selected according to inclusion criteria

Study Centre, G.I.R.M, Madras Medical College, Chennai.

METHODOLOGY (MATERIALS & METHODS)

After obtaining informed consent, venous blood samples will be drawn after an overnight fasting for doing

- Fasting lipid profile,
- HbA1C
- Fasting blood sugar

75g of anhydrous glucose is mixed with 250 ml of water and orally administered to patients. In case of patients who have sensation of vomiting, addition of lemon juice lessens the vomiting sensation.

Recent ADA guideline and National cholesterol education project adult treatment panel III guidelines will be used for diagnosing glucose intolerance and dyslipidemia respectively

All biochemical analysis will be performed by same laboratory.

Data to be collected

1	Name	
2	Age	
3	Sex	
4	BMI	
5	Occupation	
6	Socio-Economic status	
7	Level of injury	
8	Duration of Injury	
9	Mechanism of Injury	
10	Previous History of Dyslipidemia	
11	Previous History of CAD	
12	Personal History	
	Investigations	
13	OGTT	
14	HbA1C	
15	Fasting lipid profile	

INCLUSION CRITERIA

- Age > 20 Years
- All traumatic case of SCI
- Duration < 1 year
- Traumatic Spinal Cord Injury without any endocrine pathology

EXCLUSION CRITERIA

- Known case of Diabetes Mellitus – Type II Diabetes
- Past history of CAD
- Past history of dyslipidemia
- Spinal Cord Lesion – Non traumatic causes
- Other endocrine problems

RESULTS

Statistical Analysis was done using standard statistical software. Male Population with paraplegia of complete type found to be more predominant in the study. Average age group affected is 39 years with BMI of 19 – 24 belonging to low socio economic group. Fall from height is the predominant mode of injury.

As per the study, dyslipidemia and both hypo and hyper glycemia increases the cardiovascular risk in cases of spinal cord injury by accelerating the atherosclerosis.

CONCLUSION

Study Showed Blood Sugar and lipid abnormalities acts as multiplier effect for cardiovascular risk.

Recommendations

1. Periodic monitoring of blood sugar and lipid parameters along with other risk factors.
2. Appropriate Medical Management & life style modifications.
3. Institution of early rehabilitation measures.

KEY WORDS

Spinal Cord injury, Dyslipidemia, Autonomic Dysfunction, Coronary Heart disease, Insulin resistance, Carbohydrate intolerance.