

# Impact of Nutritional Intervention on Weight and Body Mass Index of HIV Positive Individuals in Tamil Nadu, South India

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# Introduction

- In PLWHA (People Living With HIV/AIDS) risk of malnutrition increases significantly during the course of HIV disease
- PLWHA with inadequate nutritional support lose more body weight and have higher mortality.
- Many of the conditions associated with HIV affect food intake, digestion & absorption.
- Nutritional counseling & intervention may prevent development of nutritional deficiencies thus reducing morbidity and mortality

# AIM

To assess the impact of a high calorie, high protein food supplement given over a period of 6 months, on the nutritional status of the HIV positive individuals in Tamil Nadu, South India.

# Material and Methods

- **Design** : Non randomized Interventional study
- **Site** : Tuberculosis Research Centre  
(Indian Council of Medical Research)  
Chennai and Madurai units
- **Subjects** : HIV positive individuals

**Intervention group** received nutritional supplement in the form of 3 kg pack of “INDIAMIX” every month to be consumed 100gms/day. (100 gms of the supplement provides 400 calories, 15% protein, 6% fat fortified with vitamins A, B<sub>1</sub>, B<sub>2</sub>, B<sub>12</sub>, C, Niacin and folic acid).

**Control group** did not receive the supplement for the first 6 months.

Institutional Ethics Committee clearance & Informed consent were obtained

# Assessment Methods

- Anthropometric, Laboratory and Dietary assessments done at baseline and at periodic intervals upto 1 year for all the patients.
- Dietary Assessment :  
Dietary survey done by nutritionist, by interview method, using a structured questionnaire  
Dietary survey includes: 24 hour dietary recall  
'Digest software' used to evaluate caloric, protein and fat intake (Ms. Sheila Anand, Ms. Dharini Krishnan, Chennai, India-designed for South Indian diet.)

# Anthropometry

- Triceps skin fold thickness



- Height, Weight
- Body mass index
- Waist & Hip circumference
- Waist-Hip ratio

- Midarm circumference



# Laboratory Investigations

Complete hemogram

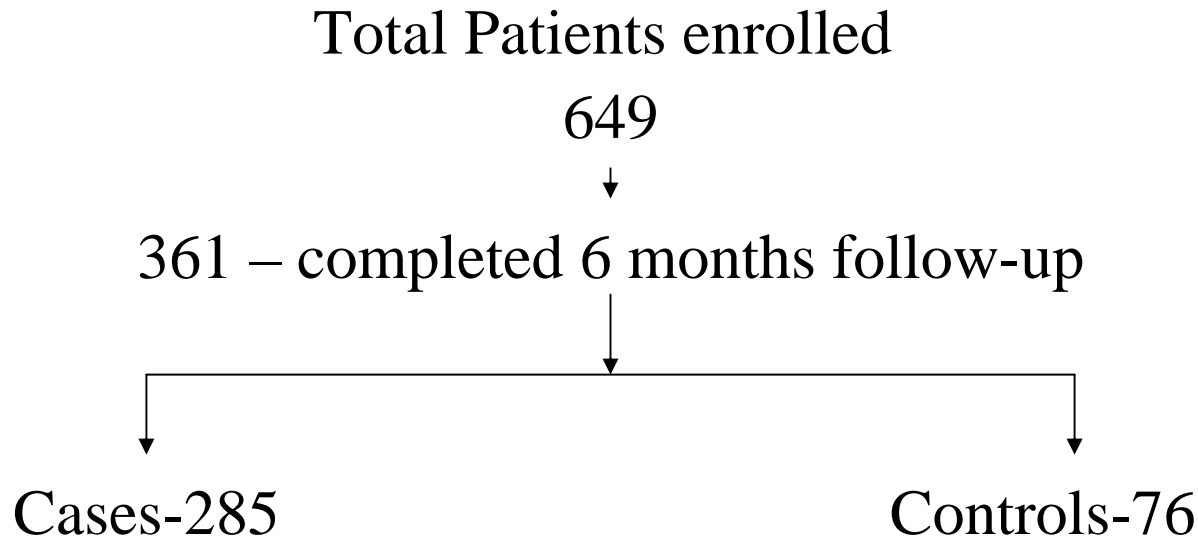
CD4 and CD8 T cells

Lipid profile

Total proteins (Albumin, Globulin & AG ratio)

# Interim Results

- Of 649 patients enrolled, 361 have completed 6 months
- 76 individuals did not receive any supplement for a period of 6 months and served as controls for the study
- Baseline characteristics like age, sex, socioeconomic status, body weight and BMI were comparable between the 2 groups.



# Proportion of patients with baseline parameters below Indian standards

Variables	Males		Females	
	Cases	Controls	Cases	Controls
Weight	80.7%	64.4%	65.9%	65.1%
BMI	38.2%	33.3%	29.3%	34.9%
Calories	93.3%	95.6%	97.1%	100%

Significant number of patients in both groups were taking lesser amount of calories intake than RDA (Recommended Daily Allowances) of Indian standards

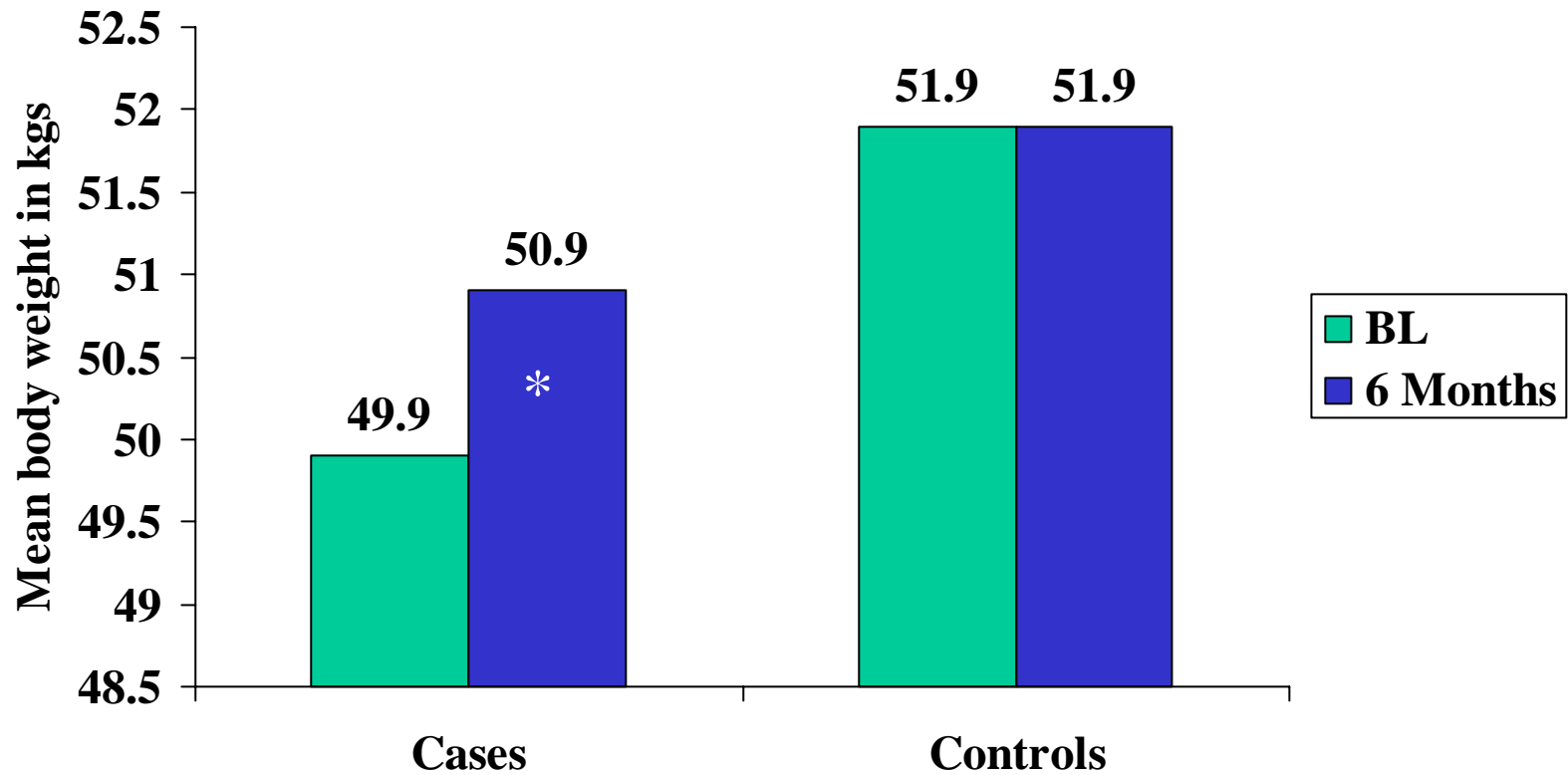
INDIAN STANDARDS :

CALORIES(RDA) BMI WEIGHT

FEMALES 2225 cal/day 19-22 50 KG

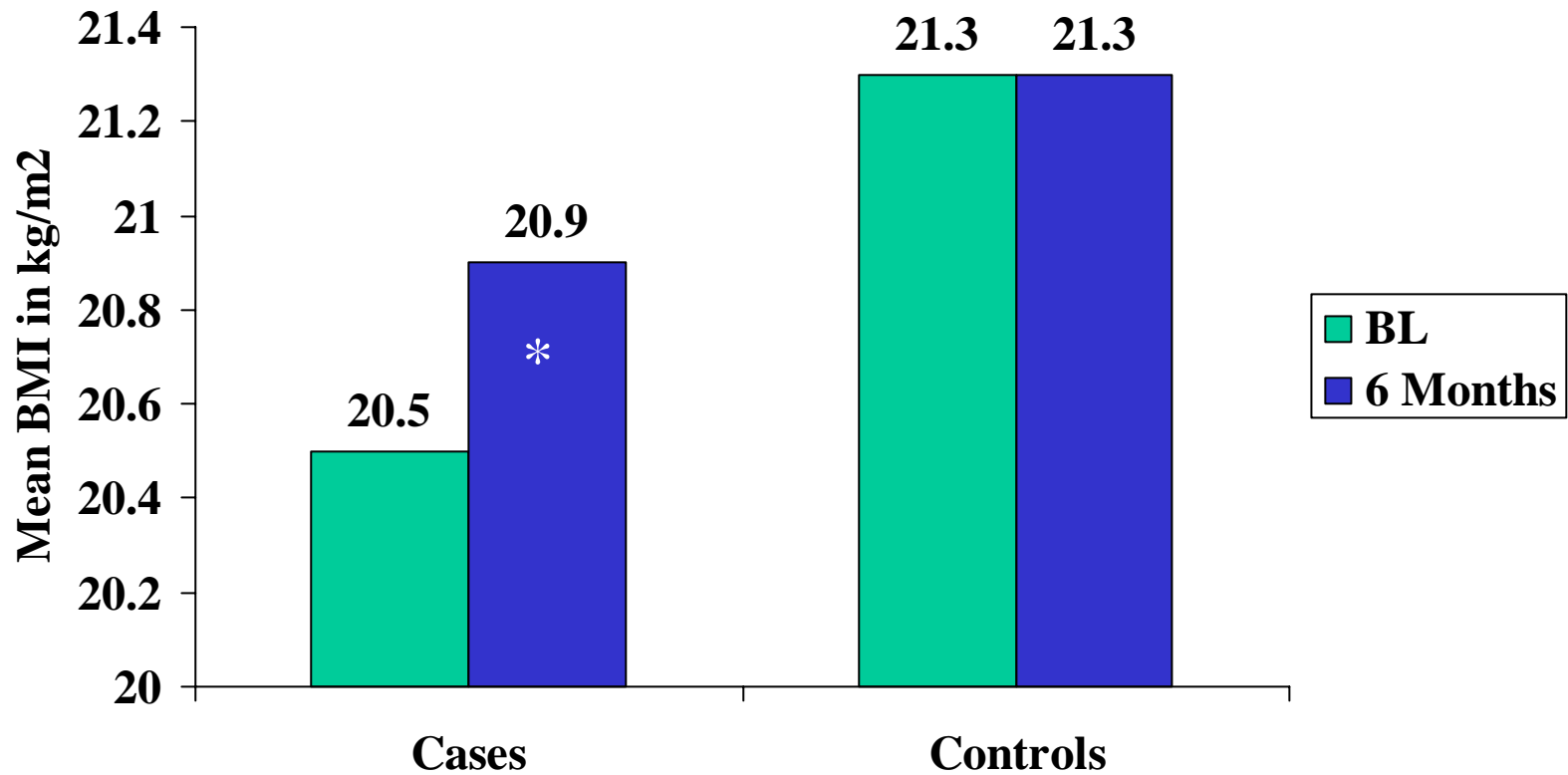
MALES 2875 cal/day 19-22 60 KG

# Impact of intervention on body weight



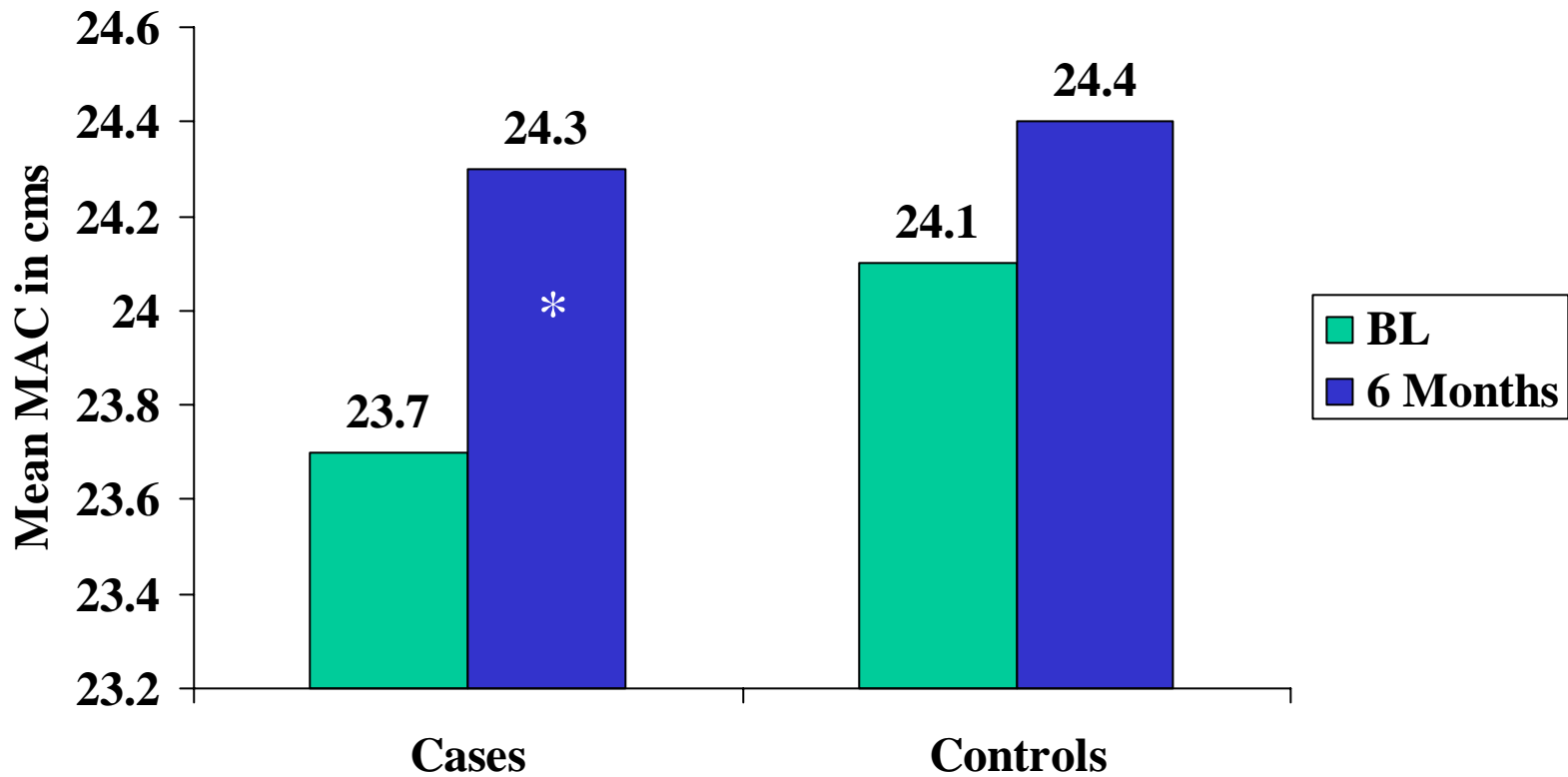
\*  $p < 0.001$

# Impact of intervention on BMI



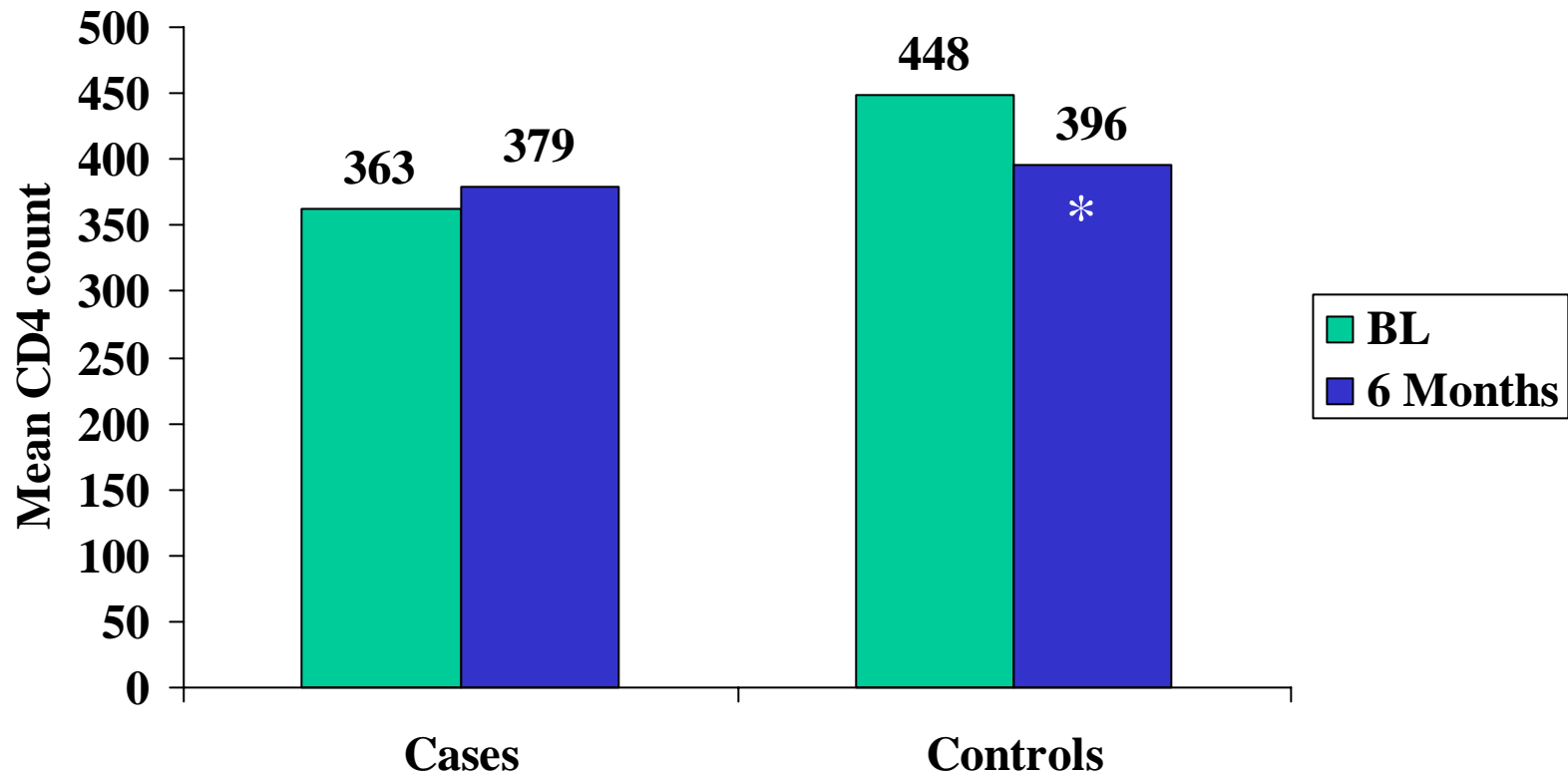
\*  $p < 0.001$

# Impact of intervention on mid-arm circumference



\* p < 0.001

# Impact of intervention on CD4 count



\*  $p = 0.03$

# Summary

- Our findings suggest after 6 months of nutritional supplementation there was a significant increase in weight, BMI and Mid Arm Circumference (MAC).
- CD4 cell count remained unchanged in the intervention group but decreased significantly in controls without nutritional supplementation.
- Nutritional supplementation in PLWHA could improve nutritional status and delay progression of HIV disease.
- This intervention needs to be tested in other settings.