

# Mannose binding lectin and carotid intima-media thickness in Chinese obese children

Wu Wei, Cheng Liqing, Fu Junfen

Zhejiang University, Children's Hospital

Direct correspondence to

Pro. Fu Junfen : fjf68@qq.com



## Background

Mannose binding lectin (MBL) is an important innate immune molecule and is previously found to be related to artery damage in some diseases as SLE, rheumatoid arthritis and severe atherosclerosis. However, its role in artery changes is still contradictory according to different studies and no study was done in obese children. We found the carotid intima-media thickness (CIMT) increased in obese children which indicated an early change of atherosclerosis and leads to the research of MBL levels in them.

## Objective and hypotheses

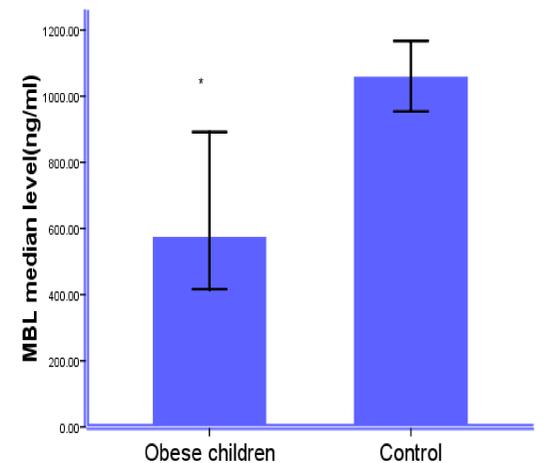
To investigate the association of CIMT with serum MBL and cell adhesion molecules levels in Chinese obese children and test the hypotheses that MBL play a role in early artery change of obese children.

## Method

It is an observational and descriptive study which included 126 obese children (age  $10.5 \pm 2.8$  yr, ranged from 3.3 to 17.7yr, BMI >95th percentile for their age and sex, 41 females and 85 males), and 105 age and sex matched controls. CIMT was determined by means of ultrasonography as MBL, sICAM and sVCAM levels were assessed by ELISA kit. The data was analyzed by SPSS16.0.

## Results

MBL levels in obese children are significantly lower than that in controls. However, no relationship was found between BMI and MBL level in the obese group. MBL level correlated negatively with right internal carotid artery intima-media thickness ( $R = -0.24$ ,  $p = 0.019$ ), which also correlated positively with blood soluble inter-cellular adhesion molecule-1 (sICAM1) and soluble vascular cell adhesion molecule-1 (sVCAM1) levels.



**Fig. 1 Blood MBL levels in obese and control children**

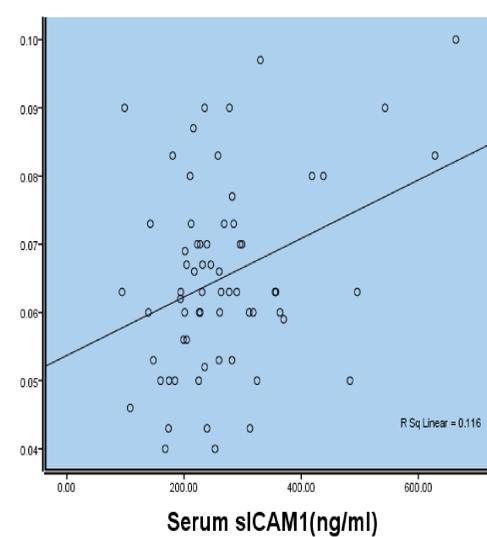
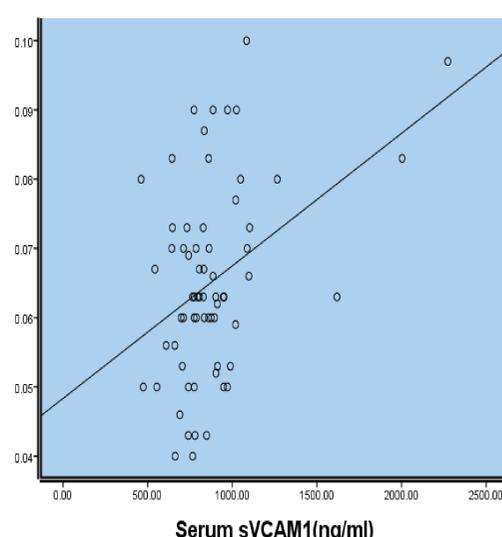
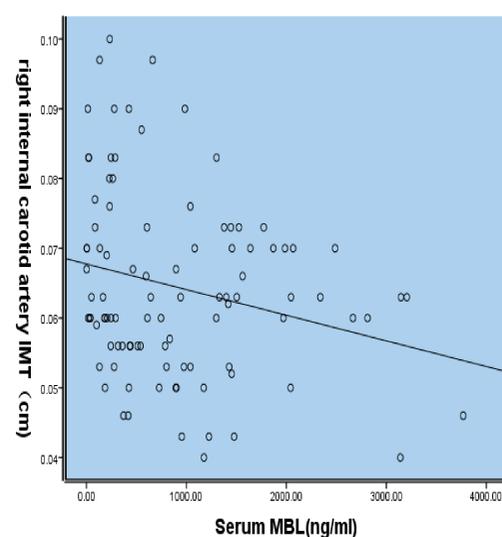
The MBL levels in both groups were in abnormal distribution and the data were presented as median with interquartile range. The difference between 2 groups was tested by Mann-Whitney U test. Obese group: 126, MBL: 573 (204, 1381) ng/ml Control group: 105, MBL: 1057 (838, 1451) ng/ml  $Z = -3.81$  \* $P < 0.001$  Error bars: 95% CI

## Conclusion

MBL may play a protective role in early change of artery in obese children and cell adhesion molecule may be involved in the process.

## Acknowledgements

The study was funded by the grant of Health Bureau of Zhejiang Province (NO:2013RCA02) and National Natural Science Foundation of China (NO.81471056)



**Fig.2 Serum MBL and sVCAM1, sICAM1 levels in obese children**

Right internal carotid artery intima-media thickness correlated negatively with serum MBL levels ( $R = -0.24$ ,  $p = 0.019$ ), and correlated positively with levels of serum sICAM1 ( $R = 0.34$ ,  $p = 0.005$ ) and sVCAM1 ( $R = 0.39$ ,  $p = 0.001$ )