

Association of serum and placenta growth differentiation factor-15 with gestational diabetes mellitus

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Objective

Growth differentiation factor-15(GDF)-15 which is a member of the transforming growth factor(TGF)-beta family, is associated with glucose metabolism.

GDF-15 is expressed in a high amount in the placenta in addition to other organs.

This study aimed to investigate whether GDF-15 levels in serum and placenta are related to gestational diabetes mellitus(GDM).

Methods

A total of 48 women were included in the study. 24 pregnant women with GDM(17 diet-controlled pregnant women and 7 insulin-treated pregnant women) and 24 uncomplicated pregnant women participated. We collected blood samples the day before the women gave birth and collected the placenta after delivery. The levels of GDF-15 in serum were analyzed by an enzyme-linked immunosorbent assay kit. And the levels of GDF-15 in the placenta were analyzed by western blot.

Results

Mean serum GDF-15 was not significantly different between GDM and the control group (p:0.194).

And Mean serum GDF-15 was not significantly different between the diet-controlled group and the insulin-treated group (p: 0.924).

Mean placenta GDF-15 was not significantly different between GDM and the control group (p:0.421).

And Mean placenta GDF-15 was not significantly different between the diet-controlled group and the insulin-treated group (p:0.874).

Parameter	GD (n=24)	Control (n=24)	P-value
Age (year)	36.7±3.7	35.4±3.7	0.317
Parity ^a	0 [0-2]	0.5 [0-2]	0.808
BMI (kg/m ²)	25.7±3.4	25.4±3.6	0.787
Gestational age (Day)	265±11	265±6	0.352
Height (cm)	161.9±4.5	161.9±5.8	0.989
Weight (kg)	68.8±10.2	67.2±10.5	0.600

Table 1. Clinical parameters: expressed as mean±SD except those marked as ^awhich are expressed as Median (minimum-maximum)

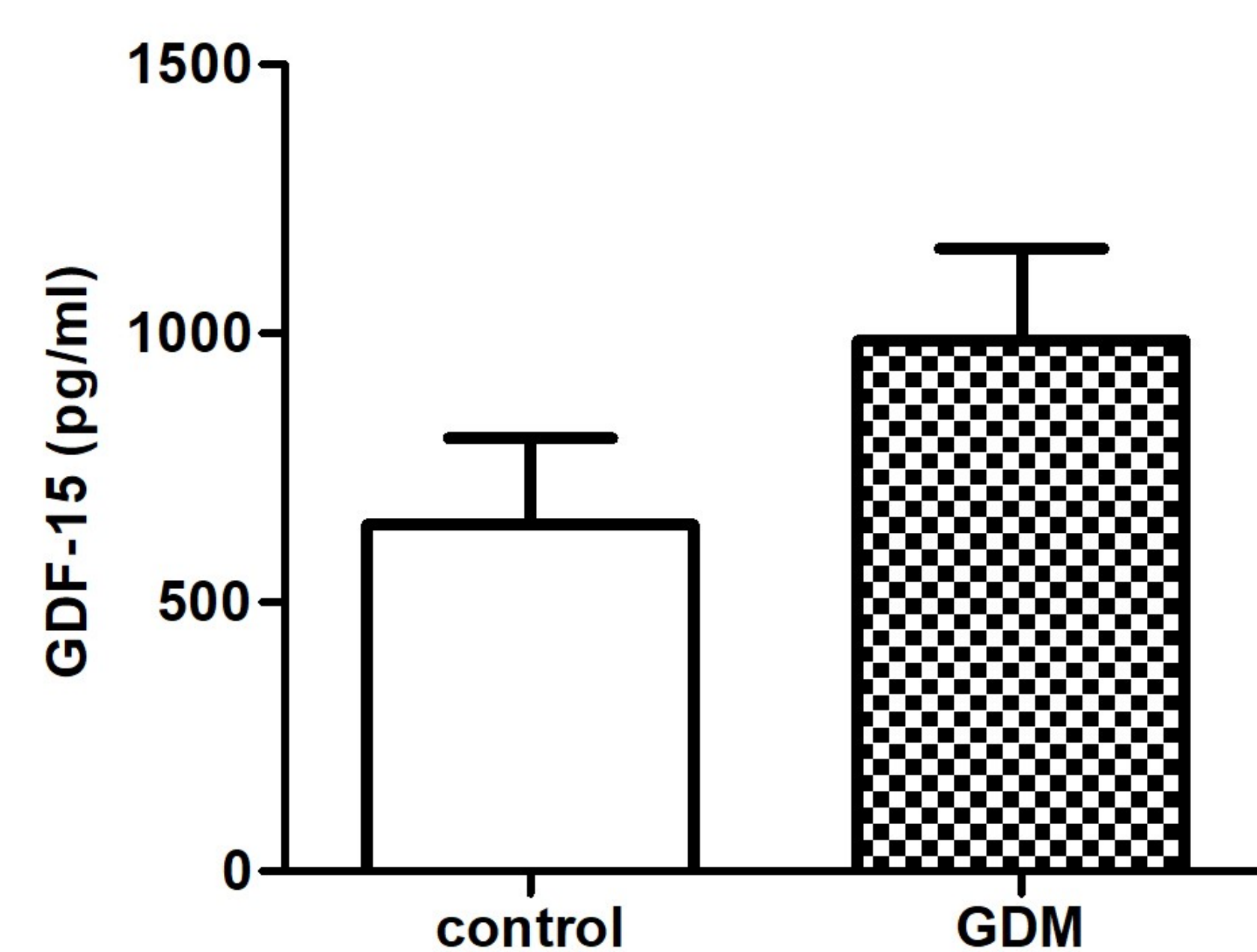


Figure 1. Serum GDF-15 in GDM and control group (p:0.194)

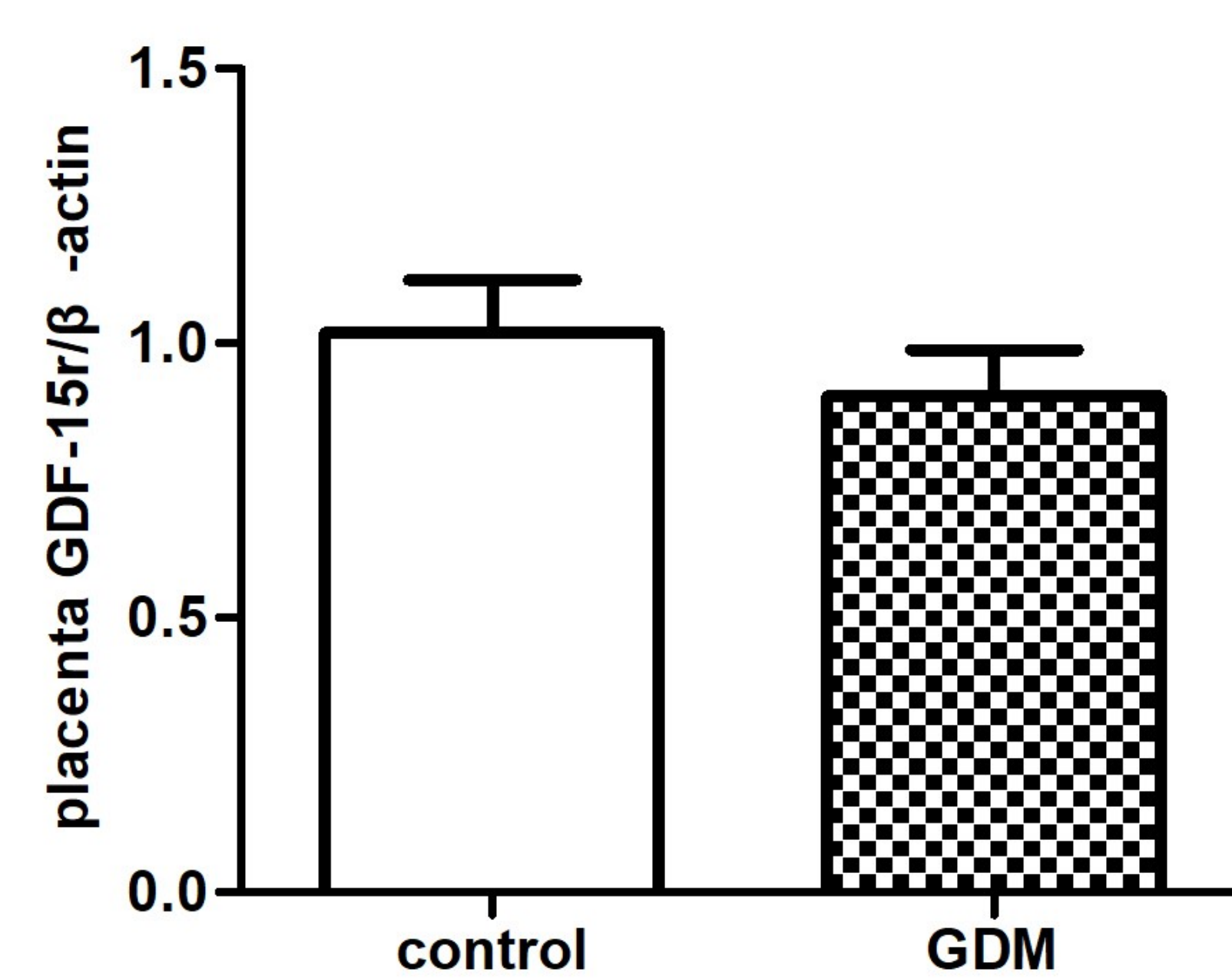


Figure 2. Placenta GDF-15 in GDM and control group (p:0.421)

Conclusion

Serum and placenta GDF-15 are not associated with GDM. Because of the small number of samples in our study, we may not find any significant differences. Further studies are needed to show the significance of GDF-15 as a biomarker for GDM.