Lp(a) and Insulin Dose in IDDM

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IDDM, insulin-dependent diabetes mellitus; Lp(a), lipoprotein(a); RIA, radioimmunoassay; NIDDM, non-insulin-dependent diabetes mellitus.

We read with interest the article of Austin et al. (1). They describe two subpopulations in 59 adolescents with IDDM in regard to the relationship between Lp(a) and daily insulin dose. Only those patients with Lp(a) above the 70th percentile showed a relationship between Lp(a) and daily insulin dose ($r = 0.72$; $P = 0.002$).

Table 1—*Lp(a) and insulin dose*

	Total	0–70th Percentile	70–100th Percentile
n	206	144	62
Age (yr)*	12.4 ± 3.52	12.2 ± 3.6	12.9 ± 3.62
Lp(a) (mg/L)†	211 (116–427)	146 (89–221)	560 (461–790)
Insulin dose (U/kg)*	1.01 ± 0.42	1.02 ± 0.39	0.98 ± 0.35

*Data are means ± SD.
†Data are medians (25–75th percentile).

We have found no relationship between Lp(a) and daily insulin dose in 206 children and adolescents with IDDM ($r = 0.06$; $P = 0.42$). This remained when data were analyzed specifically for those above the 70th percentile for Lp(a) ($r = -0.1$; $P = 0.2$) and for pubertal (Tanner 2–5) patients only ($n = 132$; $r = -0.09$; $P = 0.2$) (Table 1).

Lp(a) was measured on serum stored at 2–8° using end-point nephelometry (Hyland laser nephelometer PDQ) and addition of specific monoclonal antibodies (INCSTAR, Stillwater, OK). This method has been correlated with RIA (Pharmacia, Uppsala, Sweden) ($n = 57$, Lp(a) range 30–1500 mg/L, $r = 0.97$) in our laboratory.

Consistent with our findings that show no relationship between Lp(a) and insulin dose in IDDM, patients with hyperinsulinemia of NIDDM do not show higher Lp(a) (2).

References

1. Austin A, Warty V, Janosky J, Arslanian S: The relationship of physical fitness in lipid and lipoprotein(a) levels in adolescents with IDDM. *Diabetes Care* 16:421–26, 1993
2. Haffner SM, Morales PA, Stern MP, Gruber MK: Lp(a) concentration in NIDDM. *Diabetes* 41:1267–73, 1992

Is There or Is There Not a Relationship Between Lp(a) and Insulin Dose in IDDM?

The observation of a relationship between Lp(a) levels and reported daily doses of insulin in IDDM patients in our study (1) was a post hoc finding. As Fig. 1 shows, the regression analysis of Lp(a) and daily insulin dose clearly divides the patient population into 2 groups (as designated by – – – –). In the group with Lp(a) <10 mg/dl, no relationship was found between Lp(a) and insulin dose. However, in the group with Lp(a) >10 mg/dl, a significant correlation was observed ($r=0.72$, $P=0.002$). Though no differences were noted between these 2 groups with regard to duration of diabetes, BMI, daily insulin dose, and plasma lipids, HbA_1 level was lower in the first group compared with the second group (10.0±0.3 vs. 11.9±0.6%, $P=0.005$). Poor glycemic control has shown association with elevated Lp(a) levels (2). It is possible that in our efforts to improve glycemic control in the group with elevated HbA_1 and higher Lp(a), daily insulin doses were increased. Thus, the relationship between Lp(a) and insulin dose could be an epi phenomenon secondary to the relationship of Lp(a) and HbA_1. However, HbA_1 and Lp(a) levels did not correlate ($r=0.28$, $P=0.3$) in the group with Lp(a) >10 mg/dl.

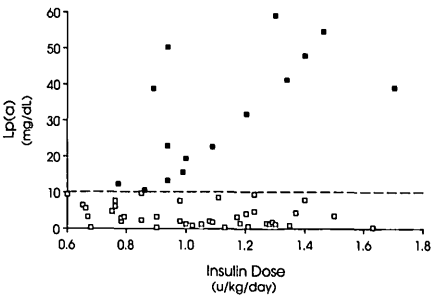

Fig. 1—*Correlation of Lp(a) and daily insulin dose.*

Contrary to our findings, and in a much larger population of children and adolescents with IDDM, Couper et al. (3) found no relationship between Lp(a) and insulin dose. In both cases, however, it is cautioned that the insulin dose is reported by the patients, and, as most diabetes health-care professionals are aware, in a significant proportion of diabetic adolescents, this may not be a reliable index of the true insulin doses ad-