Dear Sir:

In a recent issue of the Journal, Garaulet et al (1) report that adipose tissue from the perivisceral depot (surrounding the gall-bladder) has a relatively high saturated fatty acid content and a relatively low monounsaturated fatty acid content compared with fat from other abdominal depots. They also report that there were no correlations between fasting serum insulin values and the fatty acid composition of the abdominal adipose tissue samples. However, the interpretation of these findings might be complicated by the authors’ method of selecting their study subjects. All of the 84 subjects in their study were patients admitted to a hospital for abdominal laparoscopy or laparotomy, but the sites of adipose tissue sampling depended on the patient’s type of surgery and surgical diagnosis (specifically gallbladder, ulcer, or umbilical hernia). Assuming that the subjects providing perivisceral tissue (n = 57) and those providing omental tissue (n = 24) were generally distinct from one another, these site-specific tissue specimens were probably taken from patient groups with different medical conditions. The perivisceral tissue probably was sampled from patients with gallbladder disease, whereas the omental tissue probably came from patients with ulcer or hernia. If this is true, then any differences observed in the fatty acid compositions could reflect the subject’s medical condition rather than the anatomic site of the adipose tissue specimen. Persons with gallbladder disease tend to have a higher weight and higher glucose and insulin concentrations (2, 3). Because these conditions are also characteristic of the insulin resistance syndrome, it could be important to learn whether the adipose tissue from patients with gallbladder disease (regardless of anatomic site) has a relatively higher concentration of saturated fatty acids.

Fasting serum insulin concentrations are useful in estimating insulin resistance in nondiabetic populations (4) but serve less well in estimating insulin resistance among subjects with impaired glucose tolerance or diabetes (5), ie, persons with diminished insulin production. In Garaulet et al’s study, the potential association between insulin resistance and fatty acid composition in tissue might have been obscured by undiagnosed diabetes among the subjects. Despite the investigators’ intention to exclude patients with diabetes, many of their subjects had impaired fasting glucose or type 2 diabetes as evidenced by their relatively high mean fasting glucose concentrations (x ± SD: men, 6.9 ± 3.8 mmol/L; women, 6.2 ± 2.7 mmol/L). The threshold value for diagnosing impaired fasting glucose is 6.1 mmol/L and for provisionally diagnosing diabetes is 7.0 mmol/L. Thus, many of Garaulet et al’s subjects had some degree of pancreatic insufficiency. Given their heterogeneous study population, perhaps Garaulet et al could use alternative analytic approaches to determine whether the fatty acid composition of adipose tissue is associated with insulin resistance. This would be of interest because previous studies have reported an association between the fatty acid composition of a person’s diet and an elevated risk of type 2 diabetes (6, 7).

Henry S Kahn
Rodolfo Valdez

Division of Diabetes Translation
MS K-10
National Center for Chronic Disease Prevention and Health Promotion
4700 Buford Highway, NE
Atlanta, GA 30341-3717
E-mail: hsk1@cdc.gov

REFERENCES


Fatty acid composition of abdominal adipose tissue

In a recent issue of the Journal, Garaulet et al (1) report that adipose tissue from the perivisceral depot (surrounding the gall-bladder) has a relatively high saturated fatty acid content and a relatively low monounsaturated fatty acid content compared with fat from other abdominal depots. They also report that there were no correlations between fasting serum insulin values and the fatty acid composition of the abdominal adipose tissue samples. However, the interpretation of these findings might be complicated by the authors’ method of selecting their study subjects. All of the 84 subjects in their study were patients admitted to a hospital for abdominal laparoscopy or laparotomy, but the sites of adipose tissue sampling depended on the patient’s type of surgery and surgical diagnosis (specifically gallbladder, ulcer, or umbilical hernia). Assuming that the subjects providing perivisceral tissue (n = 57) and those providing omental tissue (n = 24) were generally distinct from one another, these site-specific tissue specimens were probably taken from patient groups with different medical conditions. The perivisceral tissue probably was sampled from patients with gallbladder disease, whereas the omental tissue probably came from patients with ulcer or hernia. If this is true, then any differences observed in the fatty acid compositions could reflect the subject’s medical condition rather than the anatomic site of the adipose tissue specimen. Persons with gallbladder disease tend to have a higher weight and higher glucose and insulin concentrations (2, 3). Because these conditions are also characteristic of the insulin resistance syndrome, it could be important to learn whether the adipose tissue from patients with gallbladder disease (regardless of anatomic site) has a relatively higher concentration of saturated fatty acids.

Fasting serum insulin concentrations are useful in estimating insulin resistance in nondiabetic populations (4) but serve less well in estimating insulin resistance among subjects with impaired glucose tolerance or diabetes (5), ie, persons with diminished insulin production. In Garaulet et al’s study, the potential association between insulin resistance and fatty acid composition in tissue might have been obscured by undiagnosed diabetes among the subjects. Despite the investigators’ intention to exclude patients with diabetes, many of their subjects had impaired fasting glucose or type 2 diabetes as evidenced by their relatively high mean fasting glucose concentrations (x ± SD: men, 6.9 ± 3.8 mmol/L; women, 6.2 ± 2.7 mmol/L). The threshold value for diagnosing impaired fasting glucose is 6.1 mmol/L and for provisionally diagnosing diabetes is 7.0 mmol/L. Thus, many of Garaulet et al’s subjects had some degree of pancreatic insufficiency. Given their heterogeneous study population, perhaps Garaulet et al could use alternative analytic approaches to determine whether the fatty acid composition of adipose tissue is associated with insulin resistance. This would be of interest because previous studies have reported an association between the fatty acid composition of a person’s diet and an elevated risk of type 2 diabetes (6, 7).

Henry S Kahn
Rodolfo Valdez

Division of Diabetes Translation
MS K-10
National Center for Chronic Disease Prevention and Health Promotion
4700 Buford Highway, NE
Atlanta, GA 30341-3717
E-mail: hsk1@cdc.gov

REFERENCES