

erythrocyte vitamin E (nmol/gHB)  $18.8 \pm 3.5 / 15.6 \pm 6.5$ ,  $p < 0.001$ . The ratio of TBARS to LDL mmol was lower in the controls than in the diabetic patients ( $0.78 \pm 0.18 / 0.88 \pm 0.22$ ,  $p < 0.3$ ) and was negatively related to the serum vitamin E concentration ( $r = -0.19$ ,  $p < 0.04$ ). In addition to the other classical factors linked to the macroangiopathy, an analysis by logistic regression showed that high levels TBARS ( $p < 0.04$ ) and low serum concentrations of vitamin C ( $p < 0.01$ ) are significantly associated with this vascular disease, especially with lower limb attack.

This study provides a correlation between lipid peroxidation and macroangiopathy and insights into a role for antioxidant vitaminic deficiency in the aetiology of atheroma in diabetic patients. Larger clinical trials are warranted to investigate the efficacy of antioxidant vitamin therapies in the prevention of macrovascular complications.

**Changes in lipid metabolism after cecectomy depend on diet composition and experimental model.** R Sablé-Amplis, R Sicart (CNRS, universit  Paul-Sabatier, rue F-Magendie, 31400 Toulouse, France)

To date, there are conflicting results concerning the beneficial effects of products derived from the fermentation of carbohydrate residues in the gut on lipid metabolism. The main sites of bacterial activity are the cecum and the proximal colon. The effects of cecectomy have been described in hamsters (Sicart *et al* (1984) *IRCS Med Sci* 12, 490-491). Here, we examined the consequences of cecectomies in rats, which differ greatly from the hamster in terms of the morphology of their gastrointestinal tract and lipid metabolism. The animals (6 rats per group) were fed either a standard diet or the same diet enriched with fiber (10% apple pectin) associated or not with cholesterol (2%). The surgical treatment was performed

after 15 d of adaptation to the experimental diet.

In rats receiving the standard diet, the levels of cholesterol (Ch) and triglycerides (TG) in the plasma and liver were not changed 4 weeks after removal of the cecum, even when the diet was enriched with fiber. In intact rats fed the cholesterol-enriched diet, the plasma Ch (not TG) level increased from  $79 \pm 7$  to  $126 \pm 16$  mg/100 mL, while in the liver, the level of cholesterol rose from  $253 \pm 16$  to  $1\ 068 \pm 144$  and that of TG from  $1\ 068 \pm 198$  to  $4\ 214 \pm 909$  mg/100 g of fresh tissue. In rats fed this diet, cecectomy increased plasma and liver cholesterol up to  $156 \pm 15$  mg/100 mL (not significant) and  $1\ 765 \pm 81$  mg/100 g ( $p < 0.002$ ), respectively. The ingestion of pectin along with the cholesterol did not change the effect of cholesterol given alone in either intact or cecum-deprived rats.

These results are in contrast with those previously reported in hamsters. In this animal model, the removal of the cecum causes the level of plasma cholesterol to be dramatically augmented (+200%) and especially in animals fed a fiber-enriched diet prior to the cecectomy (+300%).

In conclusion, the effects of a cecectomy, which suppress a large part of the end-products of bacterial fermentation, on lipid metabolism, appear to be dependent on the diet composition and on the animal species used as the experimental model.

**Phenotype and genotype of cytochrome P450 2E1, a key enzyme in ethanol metabolism.** D Lucas <sup>1</sup>, P Bodenez <sup>2</sup>, F Berthou <sup>1</sup>, JF Menez <sup>1</sup> (<sup>1</sup> *Laboratoire de biochimie-nutrition*; <sup>2</sup> *Service d'alcoologie, facult  de m decine de Brest, 29285 Brest cedex, France*)

Cytochrome P450 2E1 (CYP2E1) is a key enzyme in ethanol metabolism and is induced after chronic administration of