375

THE ABSORPTION OF *trans*-RESVERATROL IN THE RAT

GJ Soleas, M Angelini, EP Diamandis, DM Goldberg,
Toronto, Ontario

Trans-Resveratrol (3,5,4'-trihydroxystilbene) has powerful *in vitro* effects as an antioxidant, antiplatelet and anti-inflammatory constituent of red wines and is held by many to play a major role in the prevention of CHD attributable to this beverage (Soleas *et al.*, *Clin. Biochem.* 30,91–113,1997). Currently, it is being promoted as a "heart health supplement" marketed as a pill, but evidence for its absorption is scanty. Its lack of solubility in aqueous media and its presence in the skin and fibrous components of only one or two human foods (grapes and peanuts) cast further doubt on its bioavailability other than in alcoholic solutions. To study this question, we gave 298 nCi of [H^3]-resveratrol added to 10% ethanol, white grape juice or vegetable homogenate (V-8) by stomach tube to male Wistar rats (avg. weight 300 g), following which the animals were held in metabolic cages for collection of urine and feces independently. After 24 h, they were sacrificed with collection of blood, various organs, and the contents of colon and bladder that were added to stool and urine respectively. Only traces of radioactivity were detected in the blood after 24 h, or in groups of rats sacrificed at 30 min intervals over the first 2h. Urine and bladder accounted for 50–60%, and stool and colon for 11–14% of the radioactivity after 24 h, respectively. There were no significant differences between the three beverages. Only traces of radioactivity were detected in spleen, liver, kidney, or the cellular elements of the blood. Using ethanol as the vehicle, competition experiments were performed with cold resveratrol as well as unlabelled catechin and quercetin (two polyphenols present in red wine that have similar structures to resveratrol). None of these compounds altered the amount of radioactivity in stool or urine after 24 h. We conclude that around 50–85% of the *trans*-resveratrol entering the rat intestine is absorbed, probably by bulk fluid transfer rather than by receptor-mediated mechanisms and that its clearance from the blood stream is very rapid. 25–30% of tracer could not be accounted for and may have been deposited in adipose tissue and brain in view of its lipophilic nature. Finally, the presence of alcohol does not seem to be necessary for effective absorption to take place.

Can J Cardiol Vol 15 Suppl D September 1999
PP 210 D