ABSTRACT

(Iso)-eicosanoids appear to play a pivotal role in lymphatic contractility. Because prostaglandin (PG)I₂, an arachidonic acid (20:4) metabolite, is a key substance generated by human lymphatics, both from exogenous and endogenous substrates, it is reasonable to assume that altered nutritional intake of precursor fatty acids (FA) influences formation of respective eicosanoids qualitatively and quantitatively, and thereby modify its biological effects on human lymphatics. We, therefore, examined the effect of 2 other FA-precursors, dihomo-γ-linolenic (20:3) and eicosapentaenoic acid (20:5) on the formation of the respective PG-metabolites in human lymphatics removed from the legs in patients undergoing amputation after traumatic injury. 20:3 and 20:5 were poorer substrates to form PGs. Because these PGs exert different biological actions and their synthesis may be altered by vascular environmental risk factors such as cigarette smoking, diabetes mellitus, hyperlipidemia, and availability of FA precursors and therefore nutrition, PGs may profoundly modulate the lymphatic contractile response under a variety of circumstances. The full effect of all the formed compounds of the 1- and 3-series PGs on lymph vessel contractility, however, still needs to be tested.