GUT
An International Journal of Gastroenterology and Hepatology

Published Online First 26 March 2010

Eicosapentaenoic acid reduces rectal polyp number and size in familial adenomatous polyposis

Nicholas J West, Susan K Clark, Robin K S Phillips, John M Hutchinson, Roger J Leicester, Andrea Belluzzi, Mark A Hull

1. Correspondence to Professor Mark Hull, Section of Molecular Gastroenterology, Leeds Institute of Molecular Medicine, St James's University Hospital, Leeds LS9 7TF, UK; M.A.Hull@leeds.ac.uk

Objective The omega-3 polyunsaturated fatty acid eicosapentaenoic acid (EPA) has anticolorectal cancer activity in vitro and in preclinical models. The present study tested whether a novel, enteric-coated formulation of EPA, as the free fatty acid (EPA-FFA), has chemopreventative efficacy in patients with familial adenomatous polyposis (FAP), in a randomised, double-blind, placebo-controlled trial.

Methods Patients undergoing endoscopic surveillance of their retained rectum postcolectomy were randomised to EPA-FFA (SLA Pharma) 2 g daily or placebo for 6 months. The number and size of polyps in an area of mucosa defined by a tattoo were determined before and after intervention. Global rectal polyp burden was scored (−1, 0, +1) by examination of video endoscopy records. Mucosal fatty acid content was measured by gas chromatography–mass spectrometry.

Results 55 patients with FAP were evaluated by an intention-to-treat analysis (EPA-FFA 28, placebo 27). Treatment with EPA-FFA for 6 months was associated with a mean 22.4% (95% CI 5.1% to 39.6%) reduction in polyp number (p=0.012) and a 29.8% (3.6% to 56.1%) decrease in the sum of polyp diameters (p=0.027). Global polyp burden worsened over 6 months in the placebo group (−0.34) unlike the EPA-FFA group (+0.09, difference 0.42 (0.10–0.75), p=0.011). EPA-FFA treatment led to a mean 2.6-fold increase in mucosal EPA levels (p=0.018 compared with placebo). EPA-FFA was well tolerated with an incidence of adverse events similar to placebo.

Conclusions EPA-FFA has chemopreventative efficacy in FAP, to a degree similar to that previously observed with selective cyclo-oxygenase-2 inhibitors. EPA holds promise as a colorectal cancer chemoprevention agent with a favourable safety profile.

.