

**CELL KINETIC EFFECTS OF SELENIUM AND VITAMIN C IN SUBJECTS WITH ADENOMATOUS POLYPS: 1 YEAR FOLLOW UP STUDY.**

R.J. Cahill, K. O'Sullivan, S. Beattie, H. Hamilton., C. O'Moran.  
Department of Gastroenterology, Meath and Adelaide Hospitals, Trinity College, Dublin.

Cell kinetic studies have shown that subjects with adenomatous polyps of colorectal carcinoma have increased colonic crypt cell proliferation compared to subjects with no colonic disease. Short term supplementation with Vitamin C and Selenium has been shown to reduce colonic crypt cell proliferation. The aim of this study is to assess the long term effects of Selenium and Vitamin C supplementation. Twenty subjects with adenomatous polyps were recruited for the study. They were assigned equally into two groups. Group 1: 200 µg Selenium supplementation daily for one month followed by 100 µg Selenium daily for eleven months. Group 3: 750 mg Vitamin C for one year. Four pinch biopsies were taken 20 cm from the anal margin for cell proliferation analysis before supplementation, at one month and at the end of the one year supplementation period. Cell kinetics were analysed using the in vitro bromodeoxyuridine (BrdU) immunohistochemical technique. The labelling index per cent (LI%) was calculated as the percentage ratio of the mean number of proliferating cells to the total number of cells in the crypt. Six of the selenium study group returned for one year assessment. All these patients were compliant. Eight of the vitamin C group returned at one year, four were compliant (c) and four had stopped taking the supplement for a mean of four months (nc).

One subject in the non-compliant vitamin C group developed an adenomatous polyp. Cell proliferation results are as follows.

Group	n	Pre-trial (LI%)	1 Month (LI%)	1 Year (LI%)
Selenium	6	5.04 (0.6)	3.04 (0.3)*	2.74 (0.5)*
Vitamin C (c)	4	4.68 (0.5)	3.07 (0.4)	2.32 (0.2)
Vitamin C (nc)	4	6.23 (0.5)	1.96 (0.1)	2.96 (0.2)

All the results expressed as mean (S.E.). \* p<0.05 when compared to the pre-trial levels.

Non compliant subjects in the vitamin C group had a trend to higher cell proliferation rates compared to compliant subjects. Selenium supplementation maintained the cell proliferation rates as a significantly lower level than the pre-supplementation levels (p<0.05). In conclusion long term supplementation with Vitamin C and Selenium reduce the colonic crypt cell proliferation in patients with adenomatous polyps.

**Note, Also published as:** *Effects of Selenium and Vitamin C on colonic crypt cell proliferation: 1 year follow up; in: European Journal of Cancer Prevention. Vol 2. Supp. 1, 1993, p28.*