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Gene expression of delta-6-desaturase in peripheral blood mononuclear cells, β7$^+$ and β7$^-$ lymphocytes in healthy controls and patients with Crohn's disease

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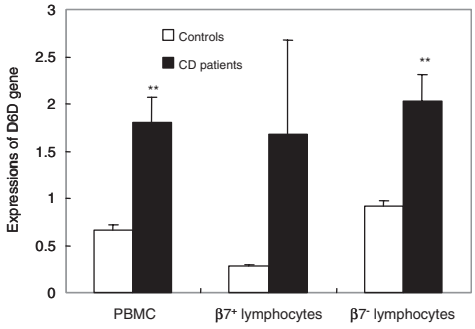
Crohn's disease (CD) is a chronic illness that causes inflammation in the gut. It can affect any part of the digestive system from the mouth to the anus. The parts most often affected are the ileum and colon[(1)]. Delta-6 desaturase (D6D) is an enzyme of the metabolic pathway that converts the essential fatty acids linoleate (LA, 18:2*n*-6) and alpha-linolenate (LNA, 18:3*n*-3) into long-chain PUFA[(2)]. Fatty acid metabolism is involved in the immune response and inflammatory processes[(3)] and fatty acid changes may be relevant to the clinical course of CD[(4)]. Peripheral blood mononuclear cells (PBMC) may be a useful, easily available and sensitive marker of the response of D6D gene to CD. The β7 integrin family of adhesion molecules on circulating lymphocytes may play a significant part in trafficking and localisation to the gut in CD[(5)]. The present study compared the expression of the D6D gene in PBMC, β7$^+$ and β7$^-$ lymphocytes between CD patients and healthy controls. Four patients with recently diagnosed CD and four healthy controls were studied. The expression of D6D gene in PBMC was higher in CD patients compared with healthy controls (Fig. 1). The patients with CD also had higher expression of D6D gene in β7$^+$ lymphocytes compared with healthy controls (Fig. 1). Furthermore, the expression of D6D gene in β7$^-$ lymphocytes tended to be higher in CD patients than healthy controls (Fig. 1). These results may indicate that higher D6D gene expression in PBMC, β7$^+$ and β7$^-$ lymphocytes in patients with CD is required to promote active desaturation of LA to maintain arachidonic acid (AA, 20:4*n*-6) levels which are severely depleted in lymphocytes in CD and is essential for the functions of these cells[(3,4)].



$^{**}P<0.01$.

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