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Therapeutic effect of propranolol in Mexican patients with infantile hemangioma

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Propranolol, a β-blocker mainly indicated for hypertension, has proven effective in treating Infantile hemangiomas wich are the most common vascular tumors of childhood. The purpose of this study was to evaluate the efficacy and adverse effects of propranolol in Mexican pediatric patients diagnosed with infantile hemangioma, treated with an extemporaneously compounded solution of propranolol. An open prospective observational study at the Children's Hospital of the California´s in Tijuana Mexico was performed on ambulatory pediatric patients diagnosed with infantile hemangioma, between the ages of 3-12 months, treated with propranolol in doses ranging from 0.5-2.5 mg/kg/day. Children's were monitored monthly by the physician in charge. In a period of 24 months 42 patients were treated. The majority of hemangiomas were superficial (55%), located mainly on the face. Treatment had an average duration of 10.5 months. Ninety-six percent responded to the treatment, showing decreases in size and coloration of the hemangioma. Children who started therapy before five months of age had a significantly better response and shorter duration of treatment. The average therapeutic dose was 1.5 mg/kg/day. Five patients experienced mild adverse effects during the first month of therapy responded to the treatment, showing decrease in size and coloration of the hemangioma. Treatment with propranolol in this group of Mexican pediatric patients, proved to be safe and effective at an average dose of 1.5 mg/kg/day, reducing the size and coloration of hemangioma with a minimum incidence of adverse effects.

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Molecular profile of the apoptosis-related genes in breast cancer cells after treatment with CpG-oligodeoxynucleotides delivered by PAMAM-coated magnetic nanoparticles

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CpG-oligodeoxynucleotide (CpG-ODN) is a potent stimulator of immune responses through triggering of a specific receptor called Toll-like receptor 9 (TLR9). In humans, TLR9 is expressed in numerous cells of the immune system and also in cancer cells. Our previous study indicated that activating of TLR9 by CpG-ODNs can generate a signal cascade for apoptosis in breast cancer cells. The purpose of this study was to examine the effects of CpG-ODN on the expression of the apoptosis-related genes in three different breast cancer cell lines, MDA-MB231, SKBR3, and MCF7. The expression profile of various apoptosis-related genes, *Bax, Noxa, Bcl-2, Survivin, PUMA, and C-Flip*, was studied and compared between untreated and *CpG*-loaded *DcMNP*-treated breast cancer cell lines. In evaluation of expression analysis of Bcl-2 and Bax, ratio of pro-apoptotic Bax to anti-apoptotic *Bcl-2* expression was considered as an apoptotic parameter. *Bcl-2*/Bax ratio increased with CpG-loaded DcMNPs stimulation at the mRNA level in MDA-MB231 cells. Furthermore, a significant enhance in the amount of Noxa mRNA expression has detected in treated MDA-MB231 and MCF7 cells which may contribute to apoptosis in these cell lines. The expression levels of C-*Flip* and Survivin mRNA were decreased significantly in treated SKBR3 and MDA-MB231 cells, respectively. In conclusion, the mechanism might be that CpG-ODN stimulates cell apoptosis through regulating the expression of apoptosis-related genes. DcMNPs is a targetable efficient delivery system for CpG-ODN which could be considered as a therapeutic agent in breast cancer.

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