Chinese herbal formula "JinQi" used as maintenance treatment for breast cancer

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Background: Maintenance therapy is needed after chemotherapy to breast cancer. Herbal medicines and endocrine therapy, which represent moderate therapeutic effect and low side-effect, are good choices. Jinqi medicine (JQ formula), which is a Chinese herbal formula consisted of Lonicerae Japonicae Flos (J), mongholicus (H) et al, is a fine choice. However, the active principle and mechanism remains unclear. Methods: Compounds of herbs were extracted and separated into several active parts by ethylacetate and n-butanol, and analyzed by High Performance Liquid Chromatography (HPLC) and Mass Spectrum (MS). 4T1, MDA-MB-231, SUM149, SUM159 and MDA-MB-468 breast cancer cell lines were enrolled and 4T1 xenograft model were established. Cell functions of proliferation and migration activity were measured by MTT and colony-forming unit assays, and the mitogen activated protein kinase (MAPK) signaling pathway and NF kappaB P65/P50 protein expression in tumor microenvironment were tested. Result: N-butanol related fraction (JQ-NB) and residual related fraction (JQ-RE) were confirmed, which mainly contain flavonoids and glucoside-containing compounds, respectively. In vitro, JQ-NB and JQ-RE fraction inhibited cancer cell proliferation and migration ability of 4T1, MDA-MB-231, SUM149, SUM159 and MDA-MB-468 in a dose dependent manner. In vivo, tumor volume and weight decreased significantly in JQ-NB/RE groups, especially JQ-RE was identified as the most effective solvent fraction while used by intraperitoneal injection. Meanwhile, in tumor microenvironment, the expression of phosphorylated-ERK, NF kappaB P50/P65, VEGF, EGF and TGF beta were suppressed by JQ-NB and JQ-RE, respectively. Conclusions: This study indicated that JQ-NB and JQ-RE part inhibit cell proliferation and migration activity by influenced the MAPK, NF kappaB signaling pathway and cytokines expression and it is effectiveness. In summary, JQ preparation can be used as maintenance therapy for breast cancer.