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2次元および3次元培養したMCF-7乳癌細胞の生存に及ぼすAs<sub>2</sub>S<sub>2</sub>単独およびテトランドリンの併用効果

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**Objective:** The aim of the present study was to investigate the effects of arsenic disulfide (As<sub>2</sub>S<sub>2</sub>) on two-dimensional (2D) and three-dimensional (3D) culture model of MCF-7 cell line. The synergistic effect of tetrandrine was also investigated. **Methods:** Cell viability was evaluated by CCK-8 assay. A series of different concentrations of As<sub>2</sub>S<sub>2</sub> was applied alone or combined with fixed concentration of tetrandrine (3μg/ml and 5μg/ml). Drug sensitivities of 3D-cultured MCF-7 cells to different concentrations of As<sub>2</sub>S<sub>2</sub> alone, As<sub>2</sub>S<sub>2</sub> combined with 3μg/ml tetrandrine, or As<sub>2</sub>S<sub>2</sub> combined with 5μg/ml tetrandrine, were analyzed and compared with those of 2D-cultured model. **Results:** The inhibitory effect of As<sub>2</sub>S<sub>2</sub> on 2D-cultured MCF-7 cells was in a time- and dose-dependent manner. Compared with 2D-cultured cells, MCF-7 cells in 3D culture showed increased drug resistance. The IC<sub>50</sub> values of As<sub>2</sub>S<sub>2</sub> alone, As<sub>2</sub>S<sub>2</sub> combined with 3μg/ml tetrandrine, and As<sub>2</sub>S<sub>2</sub> combined with 5μg/ml tetrandrine were all increased significantly in 3D-culture compared with those in 2D-culture. The combination of As<sub>2</sub>S<sub>2</sub> and tetrandrine elevates the efficacy of the former to decrease cell viability in both 2D- and 3D-cultured MCF-7 cells. **Conclusion:** Our findings suggest that As<sub>2</sub>S<sub>2</sub> has an inhibitory effect on cell viability in 2D-cultured MCF-7 cells. In contrast, MCF-7 cells in 3D-culture showed drug resistance. Tetrandrine can promote As<sub>2</sub>S<sub>2</sub> induced inhibitory effects in both 2D- and 3D-cultured MCF-7 cells.

**Key words:** MCF-7 cell line, two-dimensional culture, three-dimensional culture, drug resistance, As<sub>2</sub>S<sub>2</sub>, tetrandrine