## conferenceseries.com

## 7<sup>th</sup> World Hematologists Congress

May 08-09, 2017 Barcelona, Spain

## L-arginine/5-fu combination preferentially rescues normal cells from apoptosis and not cancer cells

Kamran Mansouri, Mozhgan Jahani, Mehri Azadbakht, Hassan Rasouli, Reza Yarani and Davood Rezazadeh Kermanshah University of Medical Sciences, Iran

**Aim**: This study aims to investigate L-arginine, nitric oxide (NO) precursor, in combination with 5-fluorouracil (5-FU) decreases 5-FU adverse effects on normal cells but not cancer cells which is among important chemotherapy goals especially during pregnancy.

**Methods**: The human umbilical vein endothelial cells (HUVECs) and human breast cancer cell line (BT-20) were treated with L-arginine/5-FU to study their effect on cell survival, NO concentration, and glycolytic activity. Moreover, using molecular docking study, L-arginine effect on glycolysis enzymes activity was evaluated. L-arginine/5-FU effect on angiogenesis was also assessed *in vivo* and *in vitro*. Furthermore, L-arginine effect on 5-FU toxicity was assessed by measuring embryo weight. Real-time PCR and zymography were used to evaluate VEGF and MMP2, 9 expression and enzyme activities, respectively.

**Results**: L-arginine/5-FU treatment increased cell survival in HUVECs but induced cell death in BT-20. NO concentration in both cell lines was increased. An inhibitory effect of L-arginine on glycolysis enzyme, human glucokinase (HG) was affirmed through molecular docking study and further supported by glycolysis experiment showing glucose and lactate levels decrease in cancer cells but not in normal cells. Angiogenesis induction in HUVECs was confirmed through VEGF and MMP-2, 9 up-regulated gene expressions and increased MMP-2, 9 activities but a down-regulation in BT-20 treated with both drugs alone and in combination. Furthermore, increase *in vivo* angiogenesis and decrease embryo cytotoxicity was observed.

**Conclusion**: Altogether, findings speculate that L-arginine inhibits cell death induced by 5-FU in normal cells by attenuating the adverse effects of 5-FU, while it doesn't do so in cancer cells (BT-20).

## Biography

Kamran Mansouri completed his PhD at Tehran University of Medical Sciences, Iran. He is the Head of Department of Molecular Medicine at Kermanshah University of Medical Sciences, Iran. He has published more than 50 papers in reputed journals.

kmansouri@kums.ac.ir

Notes: