

Expression of antiapoptotic survivin gene in treated and untreated Ehrlich tumor bearing mice with prodigiosin as a significant marker

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Introduction & Aim: Survivin gene is a member of IAP (Inhibitors of Apoptosis Proteins) family. It's over expression has been demonstrated in tumors of breast, as well as in esophagus, pancreas, bladder, uterus, cervix, ovary, large-cell non-Hodgkin's lymphoma and leukemia, neuroblastomas, melanomas, gastric tumors, colon, stomach, liver, oral, thyroid, laryngeal, osteosarcoma and prostate cancer. The main objective was to investigate the level of this marker in treated and untreated Ehrlich tumor bearing mice with prodigiosin (a red pigment extracted from *Serratia marcesens* has different biological functions) and study of its relationship with the growth of tumor and survival of Ehrlich tumor bearing mice.

Methods: Apoptosis was investigated by immunohistochemistry staining technique and survivin gene expression was investigated quantitatively PCR in six different groups of Erlich tumor bearing mice each group has 10 mice and groups were classified as follow: Group (A1) treated with 5 mg prodigiosin for 14 days; group (A2) treated with 5 mg prodigiosin for 21 days; group (B1) treated with 10 mg prodigiosin for 14 days; group (B2) treated with 10 mg prodigiosin for 21 days; group (C1) untreated group and killed after 14 days and group (C2) untreated group and killed after 21 days.

Results: Survivin gene expression was decreased in treated groups (A1, A2, B1 and B2 groups) compared to those without treatment (C1 and C2 groups) and it was clear that survivin expression was affected by both time factor (14 vs.21 days) and prodigiosin dosage (5 mg vs.10 mg prodigiosin/kg body weight) which are two key determinants affecting the good response in treated groups. Extending the treatment time from 14 to 21 days in both groups A1 vs. B1 and A2 vs. B2 respectively resulted in significant decrease in surviving expressions in both groups. For insistence, in B2 group (10 mg prodigiosin/kg body weight for 21 days), the level of survivin expression decreased 4.38 times than that of the untreated group (C2 only tumor cells). Whilst, in A2 group (10 mg prodigiosin/kg body weight for 14 days), the level of survivin expression decreased 1.55 times that than of the untreated group (C2, only tumor cells). Pertaining to prodigiosin dosage, it was clear that increasing the dosage from 5-10 mg /kg body weight resulted in significant reduction in survivin expression from (1.197-1.55) and (2.22-4.38) compared to C1 and C2 groups, respectively.

Conclusion: Survivin gene expression levels showed a significant relationship with prodigiosin doses and time of treatment. This notion is clinically important, because increased survivin expression is closely associated with tumorigenesis, poor prognosis and drug resistance.

Biography

Shaimaa Ahmed Abdel-Mougood has completed her Masters and Diploma degree in Biotechnology from Alexandria University, Egypt. She is interested in pharmaceutical biotechnology, molecular biology, cell biology, oncology, photochemistry, nanotechnology and drug-design researches.

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