EuroSciCon

JOINT EVENT
7th Edition of International Conference on
Internal Medicine and Patient Care
&
6th Edition of International Conference on
Pain Management

March 26-28, 2018
Vienna, Austria

Maria Satya Paramitha et al., Int J Anesth Pain Med 2018, Volume 4
DOI: 10.21767/2471-982X-C1-002

INVESTIGATING THE PHARMACOLOGY OF MITOXANTRONE IN ACUTE MYELOID LEUKAEMIA

Maria Satya Paramitha, Gareth Veal, Philip Berry and **Julieann Sludden**
Newcastle University, UK

Background: Mitoxantrone is an anthracenedione derivative, which functions as DNA intercalating agent. Mitoxantrone has been proven effective to treat acute myeloid leukaemia (AML) through topoisomerase-II inhibition. Previous studies suggest that challenges still emerge due to the side-effects of therapy and the possible involvement of ATP-binding cassette family of membrane transporters in mitoxantrone resistance.

Aims: We aim to develop a high performance liquid chromatography (HPLC) assay, initially, to quantify mitoxantrone in plasma and cell extracts. This assay will be used to investigate whether differences in sensitivity of a panel of AML cell lines towards mitoxantrone is related to mitoxantrone uptake and/or efflux.

Methods: Stability of mitoxantrone in different conditions was investigated in validation of the drug with simple, precise, and reproducible HPLC assay. Initially, growth curves of HL60, U937, AML-3, and HEL were generated to determine incubation time and seeding densities for *in-vitro* cytotoxicity assay with alamarBlue. Intracellular mitoxantrone uptake experiment was performed through incubating cells with different mitoxantrone concentrations for four hours before analyzing the results with HPLC assay.

Results: Mitoxantrone showed no significant differences of stability in plasma (p=0.714) and in plasma with ascorbic acid (p=0.993) after four weeks. HEL showed the highest mitoxantrone accumulation despite displaying the least sensitivity towards mitoxantrone compared with HL60, U937, and AML-3.

Conclusions: Intracellular mitoxantrone concentration does not appear to be related with sensitivity of a panel of AML cell lines towards mitoxantrone. Further studies are necessary to confirm the existence of resistance mechanisms independent from membrane transporters.

Biography

Maria Satya Paramitha is a Medical Doctor who has completed her Undergraduate study in Faculty of Medicine, Universitas Indonesia. She has completed her Master's degree by Research in Cancer from Newcastle University Medical School, United Kingdom. In this project, she was supervised by Dr. Gareth Veal from Newcastle Cancer Centre Pharmacology Group, Northern Institute for Cancer Research.

maria.satya85@gmail.com