Curcumin enhances the cytotoxic and chemo-sensitising effects of lenalidomide in human multiple myelc cells.

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Only 80% of patients with myeloma respond to cytotoxic drugs and immunomodulatory drugs (IMiDs)-based therapy, which includes drugs like thalidomide, lenalidomide, bortezomib and pomalidomide.

Curcumin has been known to display a wide range of biological activities, including anti-oxidant, anti-inflammatory and cytotoxicity to numerous cancer cell types.

Objective:

To investigate the cytotoxic and chemo-sensitising effects of Curcumin alone and in combination with lenalidomide on the human myeloma cell line H929.

Study Design:

The human myeloma cell line H929 was treated with Curcumin and/or lenalidomide were cultured for 3 days before they were analysed for apoptosis. RT- was done to examine the effects on certain gene expressions.

Results:

A dose-dependent increase in cell death was observed when H929 cells were incubated with Curcumin or lenalidomide

Combination of Curcumin (30 μM) and lenalidomide (2.5 mM) resulted in higher apoptosis compared to either Curcumin or lenalidomide alone

Multidrug resistance (MDR) genes expression was reduced post treatment with lenalidomide (2-fold), with Curcumin (4-fold), whereas combination showed 3-fold reduction

Conclusion:

Curcumin produced a cytotoxic effect additive to that of lenalidomide on H929 myeloma cells as well as enhanced the chemo-sensitizing effects of this agent.