

Evaluation of Crystal, Crack and Ethanol on viability of Mesenchymal Stem cells

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Introduction

Nowadays, due to drug abuse the world community has suffered considerable losses, resulting from productivity loss; transmission of infectious diseases; physical, mental, social and family problems and disabilities; increased crime rates; the need for providing health care practices; threatened personal safety; and decreased life quality. Crack, a cheap, highly addictive derivative of heroin unique to Iran, is rife in the poorer quarters of Irans big cities. Home-produced crystal-meth. Known as shishe, meaning glass, has also entered the market. It is favoured by many poor and disheartened young men and by many middle-class women trying to stay thin. Harmful of these agents is clear. In this study we investigated effects of them on stem cells in comparison with ethanol.

Method:

Mesenchymal stem cells were isolated from rat and human adipose tissue then exposed to crystal (60-2000µg/ml), crack (60-2000µg/ml), and ethanol (1.5%-50%).

Results:

After 1 h microscopic observation showed that high concentration of crystal and crack changed shape of cells. After 24 h we determined viability of cells by MTT assay. MTT assay confirmed our microscopic observation. At high doses (1000 and 2000µg/ml, $p < 0.001$) cells were died completely with crystal and crack while lower concentrations of these agents had less effect. Also ethanol did not have cytotoxicity at doses of 1.5-5%, it decreased viability at high doses (>5%).

Conclusion:

In result, moreover theses agent affected on different organs, they destroyed cells. It can be suggested the loss of these cells may have a role in lake of regeneration of damaged tissues.

Keyword: Adipose tissue, Crack, Crystal, Mesenchymal stem cells.

Poster Presentation

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