

## Mutagenicity evaluation of methadone in addicted patients

M. Abbasi nia<sup>1</sup>, M. Rezaei<sup>2,\*</sup>, M. Sayyah<sup>3</sup>

<sup>1</sup>JondiShapour University of Medical Sciences, Pharmacy School, Ahvaz, Iran

<sup>2</sup>Pharmacology and Toxicology Department, Pharmacy School, JondiShapour University of Medical Sciences, Ahvaz, Iran

<sup>3</sup>Education Development Center, JondiShapour University of Medical Sciences, Ahvaz, Iran

**Background and Aims:** It is well known that contact with some physical, chemical or biological compounds can increase the risk of incidence of mutation. Among these compounds, are pharmaceuticals that meet long duration of use and potentially could be misused and taken more than the ordered dose. The aim of this study was to evaluate the mutagenic effect of methadone in addicted patients referring to Imam Khomani hospital in Ahvaz by single cell gel electrophoresis technic or comet assay.

**Methods:** In this study healthy volunteers and addicted patients (test) were evaluated. Screening was done according to questionnaire and qualified subjects were entered the study. Subsequently, blood samples were collected and lymphocytes were isolated, mixed with low melting point agarose and slides were prepared according to standard method. Slides then analyzed using fluorescence microscope and comet patterns were evaluated.

**Results:** Results indicated that mutagenicity index in addicted group was robustly ( $P < 0.0001$ ) higher than healthy volunteers. Fortunately, this significant difference was lower than positive control.

**Conclusions:** Genome instability in addicted patients was demonstrated in this study. Controversially, considering incoherent results of previous studies and our data, more studies in longer duration of methadone use are needed to elucidate the consequence.

**Keywords:** Mutagenicity; Comet assay; Methadone; Lymphocyte