Conference Abstract

DAY 1 15th September 2023 (Friday)	ORAL 2	3.30-5.00 pm	Scientific Session 6

A cross-sectional study to correlate Nuclear Fixative properties of Formal Saline and Clarke's Fluid for histomorphological evaluation of Human tissues

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Background: The "formalin dogma", infers that formalin is the best and cheapest fixative. However, theInternational Agency for Research on Cancer (IARC) designated formalin as a humancarcinogen that causes nasopharyngeal cancer, leukaemia and several other conditions.Clarke's fluid is one of the non formalin nuclear fixative which has greater potential formorphological and cytological preservation. It is also known that Clarke's fluid quickly penetrates, provides strong nuclear fixation, and effectively preserves cytoplasmiccomponents.

Aim: This study was taken up to compare formal saline with Clarke's fluid, a potential alternative,in terms nuclear fixative properties for histomorphological evaluation.

Methods: After obtaining ethical clearance, tissues of skin, artery, lymph node, spleen and smallintestine were collected during autopsy. The fresh tissues were sliced into 1 × 1 cm foroptimal fixation and were immersed in sufficient amount of 10% formal saline and Clarke'sfluid respectively. After adequate fixation, these tissues were subjected to routinehistological processing and 10 serial cross-sections of each tissue were prepared. The fixedtissues were then analyzed and compared on gross morphology and histopathologicalcharacteristics and were graded based on various sectioning criteria, staining criteria andmicroscopic details.

Results: The data about the quality of fixation of the tissues were summarized by using percentages.Comparison of sectioning criteria were carried out by using Fisher's exact test with p-value< 0.05 as significant. Comparison of staining criteria and microscopic details were carried outusing Mann-Whitney U test with p-value < 0.05 as significant.

Conclusion: The potential carcinogenic and toxic effects of formalin encouraged us to reevaluate theformalin dogma and examine the substitute fixatives, which could provide superior resultsand higher worker protection. Clarke's fluid is a splendid alternative, particularly as a nuclearfixative.

Key Words: Formal Saline, Clarke's Fluid, Nuclear Fixative