K20 An Overview of Modern Chromatographic Methods for Analysis of Anesthetics

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After attending this presentation, attendees will be aware of the past and current trends of chromatographic analysis of general and local anesthetics, and understand the history of instrumental chromatographic analysis of anesthetics goes back to the 1950's, when the first anesthetic lidocaine was analyzed. The technique of chromatographic analysis has taken over all other methods of analysis due to their rapidity and ease of sample preparation.

This presentation will impact the forensic science community by making forensic experts aware of what technique, pre-sampling requirements, and extraction methods should be used for the analysis of anesthetics. Also, the presence of modern detectors and capillary columns has enabled the difficult analytical part easier for the forensic analysts.

Several attempts have been made to analyze various classes and combinations of anesthetics by spectroscopic, electrophoretic, and chromatographic methods. Chromatographic methods have taken over other conventional methods for their high detection limits, high resolution, sample recovery, and no prerequisites of sample pre-analysis. This review focuses on the development of the chromatographic methods which includes the pre-analytical aspects such as extraction from pharmaceutical samples, body fluids such as blood, serum, plasma, CSF, hair, viscera, etc., selection of appropriate chromatographic technique, and comparison of the output after analysis. The various parameters which judge the ambiguousness of a particular technique for a said drug were LOD, LOQ, RSD, and mean recovery. The three major chromatographic analytical methods for detection of trace amount of about 15 anesthetics from various sources are reviewed. In addition to this, methods for analysis of various anesthetic combinations are summarized. This review describes various developments taken place during the last twenty years on applications of chromatographic techniques in clinical measurement of various anesthetics. **Chromatographic Methods, Anesthetics, HPLC**

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