PHYSICAL AND CHEMICAL STABILITY OF SEVOFLURANE IN POLYPROPYLENE SYRINGES

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Background

It has recently been reported in the literature the use of an alternative liquid anesthetic sevoflurane on vascular ulcers. Topical application for management of analgesia appears to be successful.

Purpose

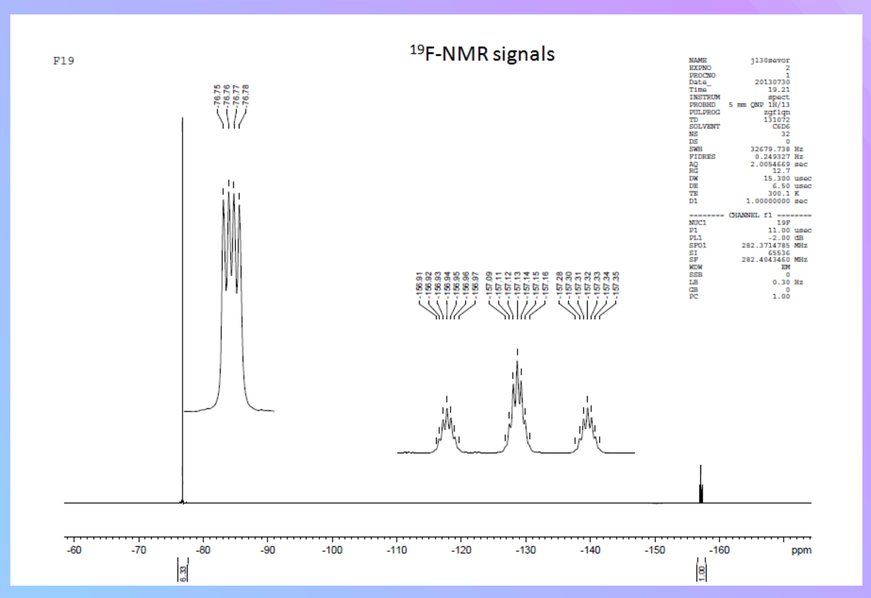
Evaluate the stability of sevoflurane in pure polypropylene amber syringes.

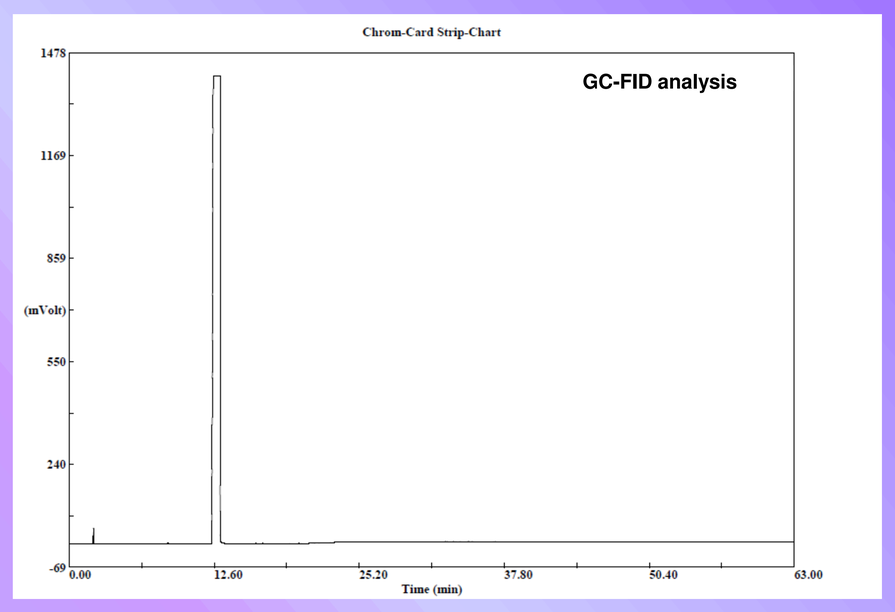
Material and methods

Commercial solutions of sevoflurane (Sevorane®) were packed in polypropylene syringes. The syringes were stored at 23 °C for 14 days in a digital temperature controlled chamber. The physical parameters monitored were clearness and color. Chemical stability was determined by means of 19-Fluorine Nuclear Magnetic Resonance (^{19}F-NMR) and gas chromatography coupled with a Flame Ionization Detector (GC-FID).

Results

Over the 14 days, the clear and colorless solution remained. ^{19}F-NMR signals identical to those of the original product were observed in all samples, corresponding to the chemical structure of sevoflurane unchanged. Meanwhile, in the GC-FID analysis, no occurrence of any additional peak was shown at the storage temperature. No degradation products were observed by both analytical techniques.





Conclusions

Pure sevoflurane preserved in amber polypropylene syringes was stable for 14 days at room temperature. This would permit its conservation in a more convenient way, and greater comfort in drug instillation on the ulcer bed from the syringe.

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