

Types of Silver Compounds

- 1) Silver Nitrate (AgNO₃)
- 2) Silver fluoride (AgF) *not popular
- 3) Silver diammine fluoride (SDF)

History of Silver

📖 Silver has been used in dentistry since the 1840s, when silver nitrate was used to reduce the incidence of caries in the primary dentition

🏥 Silver is an anti-microbial agent used in medicine and dentistry due to its broad spectrum activity, low toxicity and lack of cross-spectrum bacterial resistance

❓ What about silver in amalgam? It has not been shown to have long-term anticaries effects

Mechanism of Action?

We're not sure but the antimicrobial effect is postulated to come from the release of silver ions via:

- 1) destruction of cell wall structure
- 2) denaturation of cytoplasmic enzymes
- 3) inhibition of microbic DNA replication

Silver Nitrate

About the Pulp: In the studies reviewed in this article, silver nitrate was shown to penetrate both sound and carious dentin, both vital and non-vital dentin and has a mild, self-limiting, localized effect on the pulp

Biocompatibility of Silver

👍 Silver has been shown to be biocompatible and is used for a range of medical devices

👎 Excess silver accumulates in skin, liver, kidneys, spleen, corneas, gingiva, mucous membranes, nails; In areas of the body exposed to light, prolonged exposure to large amounts of silver compounds results in irreversible pigmentation of the skin- called argyria- or eyes- called argyrosis.

🔧 Manufacturer (Saforide) of SDF recommends patient rinse mouth with water or saline after topical application of SDF to remove the excess agent

Silver Diammine Fluoride

- ✔ Several RCTs show SDF to be more effective at arresting caries than fluoride varnish alone
- ✔ Some studies show SDF to have a desensitizing effect

Conclusions

- 👍 Silver compounds are effective agents to prevent and arrest caries
- 👎 Most obvious disadvantage is discoloration of demineralized tissue

Source

This sheet is a summary of a review published in the Journal of Dentistry in 2012
Silver compounds used in dentistry for caries management: a review.
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Page 1 of 1.

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