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Introduction

Cutaneous warts are common benign skin growths caused by human papillomavirus (HPV). Although many warts eventually undergo spontaneous resolution (50–67% clear within 1–2 years), their persistence often leads patients to seek treatment due to disfigurement or discomfort. Numerous therapeutic modalities exist – including topical keratolytic, cryotherapy, immunotherapy, and ablative procedures – yet no single treatment is 100% effective in all cases. Hydrogen peroxide (HP) is a reactive oxygen species with known caustic, antimicrobial, and tissue-destructive properties; it has been used for wound debridement and was recently FDA-approved for treating seborrheic keratoses. Lower concentrations of topical HP (3–6%) have demonstrated safety and efficacy in clearing nongenital warts in controlled trials. Additionally, a high-strength proprietary 45% HP solution showed modest clearance rates (~25% cure vs 2–15% with placebo) in phase 2 studies of common warts.

Aim: This pilot study assesses the safety and efficacy of an even higher concentration (50% hydrogen peroxide) applied topically for cutaneous warts, and documents any adverse effects and short-term recurrence.

Methods

- Study Design:** Single-arm pilot interventional study on **10 patients** (aged 7–42 years) with clinically diagnosed cutaneous warts (verruca vulgaris, plane warts, or palmoplantar warts).
- Intervention:** A 50% H₂O₂ solution was applied directly to each wart using a wooden applicator (toothpick) twice weekly. Treatment was continued for up to 12 sessions or until complete wart clearance, whichever occurred first. Hyperkeratotic warts were gently pared prior to application to enhance penetration. No local anaesthesia was used during applications.
- Efficacy Assessment:** Wart size reduction was monitored and photographed at baseline and follow-ups. A Physician's Lesion Assessment (PLA) scale was used to grade lesion clearance (complete clearance = disappearance of wart; partial response = >50% size reduction; no response = minimal or no size change).
- Safety Assessment:** Patients were observed for local skin reactions at each visit, and adverse effects were graded on a Local Skin Reaction (LSR) scale. Any symptoms such as erythema, stinging, pain, or scaling were noted. Systemic side effects were monitored clinically.
- Follow-Up:** Patients achieving clearance were followed for 4 weeks post-treatment to check for recurrence of warts. Recurrence was defined as the reappearance of lesions at the treated site during follow-up.

Results

- Wart Clearance:** **8 out of 10 patients (80%)** achieved **complete clearance** of their warts, typically within **6–10 treatment sessions**. These patients' treated lesions resolved fully as confirmed by clinical examination and photographs.
- Partial/No Response:** **1 patient (10%)** showed a **partial response** (significant size reduction but not total clearance), and **1 patient (10%)** was **non-responsive** (no appreciable change) even after the maximum 12 sessions.
- Adverse Effects:** Local side effects were mild and transient. Several patients experienced brief **erythema, stinging/burning, or mild scaling** at the application sites. These reactions were self-limited, resolving spontaneously without any medical intervention. Importantly, **no scarring, ulceration, or other long-term skin damage** was observed. There were **no systemic complications** or signs of systemic absorption toxicity noted during the study.
- Recurrence:** At the **4-week follow-up** after clearance, **no wart recurrences** were observed in any of the patients who had achieved complete clearance. All cleared warts remained resolved at one month. (By comparison, prior studies with lower concentrations of HP also reported zero recurrences in short-term follow-up. This suggests a durable short-term response to 50% H₂O₂ in our pilot cohort.)



Conclusions

Topical **50% hydrogen peroxide** demonstrated **high efficacy** and **good safety** in this pilot study of ten patients with cutaneous warts. A complete clearance was achieved in 80% of cases, with only minimal, transient side effects and **no early recurrence** noted. This clearance rate is notably higher than that reported in some trials of lower-concentration hydrogen peroxide or conventional therapies, though direct comparisons are limited by the small sample. Overall, 50% H₂O₂ appears to be a **promising therapy** for warts – it is **cost-effective, non-invasive** (no local anaesthesia required), and **cosmetically favourable** (no scarring). These preliminary findings support the role of high-concentration hydrogen peroxide as an alternative treatment for recalcitrant warts. **Larger controlled trials** are warranted to confirm these results and further establish optimal treatment protocols.

References:

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