Effectiveness Of Table Salt Versus Copper Sulphate In Treating Umbilical Granuloma: A Pilot Randomised Controlled Trial

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Background

• **Umbilical Granuloma** is a common infantile condition which usually responds well to non-operative treatment.

• Chemical cauterization using *Copper sulphate (CuSO4)* is often used, but it can lead to superficial skin burns.

• Alternatively, *table salt (NaCl)* can be used to osmotically dehydrate granulation tissue leading to necrosis.

• NaCl is self-applied by caregivers, while CuSO4 application requires trained medical personnel.
Aim

• To compare the effectiveness of NaCl versus CuSO4 in treating umbilical granuloma.
Methods

• We performed a multi-centre randomized controlled trial involving three regional Paediatric surgical units.

• We included children who presented with umbilical granuloma from December 2018 - May 2020.
Methods

Enrolment

- Excluded
  - Treatment prior to index visit

Randomization

Table salt group (n=35)
- Total 10 application (twice a day for 5 days)
- First application in clinic by investigator followed by application by caregiver at home

Copper sulphate group (n=35)
- Single application of copper sulphate by investigator in clinic setting

Follow-up

- Treatment compliance
- Treatment outcome
- Complication of treatment
Methods

Table salt kits (pills containing table salt, cotton, adhesive tap)

Each subject in the table salt group received a container with pills packed with table salt. The pill counting method was used for monitoring of compliance.
Methods

- **Treatment success:** Complete resolution of umbilical granuloma
- **Treatment failure:** Partial or No response to treatment

- Those with treatment failure were reverted to the respective center’s routine management.

- Those whose final diagnosis was NOT umbilical granuloma were excluded from data analysis.
Results

Total recruitment n=70

Table Salt Group n= 31 (44.2%)
- Poor compliance n= 5 (16.1%)
  - Complete resolution n=5 (100%)
  - Treatment failure n=0 (0%)
- Good compliance n= 24 (77.4%)
- Did not follow protocol n=2 (6.5%)
  - Complete resolution n=1 (50%)
  - Treatment failure n=1 (50%)

Copper Sulphate Group n= 33 (47.2%)
- Treatment failure n=10 (30.3%)
  - Complete Resolution n=23 (69.7%)

Excluded Group n=6 (8.6%)
- 2: lost to follow up
- 4: final diagnosis was not umbilical granuloma (2 in each group)
Results

Table salt: none had complications

Copper sulphate: 9% (n=3) developed superficial skin burns after application of copper sulphate despite usage of barrier cream.
Conclusion

• Table salt is an ideal choice of treatment for umbilical granuloma as it is effective, safe, and readily available.

• It is suitable for use in resource limited settings.
Thank you