

# **Improved Interventional Hygiene using a novel Disinfectant Ultrasound Couplant Spray**

Johann C. Ragg, MD

Founder and head of angioclinic® vein centers

Berlin – München – Zürich

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# background

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During endovenous procedures, conventional ultrasound gel is associated with several problems: Gel deposits will delay punctions and catheter handling, gel will require intense wiping for complete removal, color markings can hardly be applied on gel covered skin, and even sterile gel will be contaminated with bacteria mobilized from skin pores and wrinkles by transducer movements.

In this study, a new disinfectant ultrasound couplant spray (DUCS) was evaluated.

# methods

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## Disinfectant ultrasound spray (DUCS)

- sprayable but forms no aerosol
- non-alcoholic
- layer does not evaporate < 20 min

contains per 100 ml:

- 2-Phenoxyethanol 20.00 mg
- Octenidin dihydrochlorid 1.00 mg
- a gliding component



# methods

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- 20 healthy individuals aged 35 to 75 years
- Simulation of endovenous treatment (both legs);
- “access locations” to the GSV below knee level, furthermore at the thigh and the distal lower leg;
- legs randomized to (A) standard disinfection or (B) disinfection by use of DUCS
- contact and swab samples were taken from symmetric locations (“puncture sites”)

# methods

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## **A) standard procedure:**

mapping using conventional ultrasound gel, removal of all gel, 2 x alcoholic disinfection according to surgical requirements, sterile covering of ultrasound transducer, simulated intervention using sterile ultrasound gel;

## **B) DUCS:**

mapping using DUCS > 5 min., sterile transducer covering, simulated intervention using DUCS.

# results

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The evaluation of 20 cases (40 legs, 162 samples) showed bacterial growth...

**... after completed hygienic preparation:**

- A (standard): 0 – 46 CFU, mean 10.5
- B (DUCS): 0 – 10 CFU, mean 2.4

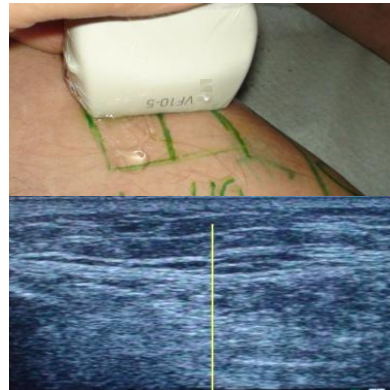
**...at the end of simulated treatment:**

- A (standard): 2 – 180 CFU, mean 17.5 CFU
- B (DUCS): (0 – 8) CFU, mean 2.1 CFU

# results

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- **Mean procedural time:**  
18:15 min. for standard, 13:00 for DUCS.
- **Gel consumption:** 32 – 75 ml (mean: 54 ml) with standard, 4 – 7 ml (5.6 ml) with DUCS.
- **Ultrasound imaging:** not different with DUCS.



# observations

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- The novel **Disinfectant Ultrasound Couplant Spray** is easy to apply like common disinfectant spray, but more agreeable (no aerosols).
- With a single application, an ultrasound gliding layer is provided for **15 – 20 minutes**.
- As a side effect, skin resistance is lowered, **facilitating punctures**.





# conclusions

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- The novel **Disinfectant Ultrasound Couplant Spray** provides similar or even better hygienic conditions than achieved by conventional alcoholic disinfection.
- It helps to **simplify endovenous procedures** and to significantly **reduce intervention time**.

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