

Review of: "Comparing the Effectiveness of Aloe Vera Gel and 2% Chlorhexidine Gluconate Solution in Preventing Phlebitis Caused by Peripheral Vein Catheters in Hospitalized Patients"

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Potential competing interests: No potential competing interests to declare.

We have the following concerns:

1. Inconsistency in Reporting the Form of Chlorhexidine (Solution vs. Gel):

- **Issue:** The researcher mentions using a 2% Chlorhexidine solution in one instance and a 2% Chlorhexidine gel in another. This discrepancy is problematic because the dosage form (solution vs. gel) has different pharmacokinetic and pharmacodynamic properties, which can significantly affect the study's outcomes.
- **Recommendation:** Clarify with the researcher which form of Chlorhexidine was actually used. If the study used a solution, then all references should consistently indicate "solution." The same applies if a gel was used. This clarification is crucial for the validity of the study's results and for accurate interpretation by other researchers or practitioners.

2. Potential Bias if Chlorhexidine Solution was Used Instead of Gel:

- **Issue:** If the study used a Chlorhexidine solution instead of a gel, there may be a bias from a pharmaceutical point of view. Solutions and gels have different viscosities, absorption rates, and retention times on the application site, which could influence the efficacy and safety outcomes.
- **Recommendation:** The study should explicitly state why a particular form was chosen and discuss the potential impact of this choice on the results. If a solution was used, the researcher should address how this might affect the study's outcomes compared to using a gel, possibly acknowledging this as a limitation.

3. Bias in the Control Group Regarding Disinfection Protocol:

- **Issue:** The researcher disinfected all groups with 70% alcohol but only applied the test gels to the experimental groups, without applying a placebo gel to the control group. This introduces a bias because the control group did not undergo the same conditions as the test groups, except for the active ingredient.
- **Recommendation:** To avoid this bias, the control group should have received a placebo gel application following the same protocol as the test groups. This ensures that any observed differences are due to the active ingredient in the test gel rather than the application process itself.

Action Steps:

- **Clarify the Chlorhexidine Form:** Contact the researcher to clarify whether a solution or gel was used and ensure all references are consistent.
- **Acknowledge Potential Bias:** If a solution was used instead of a gel, it should be discussed as a potential limitation in the study.
- **Reevaluate Control Group Protocol:** The study design should be revisited to ensure that the control group was treated as similarly as possible to the test groups, with the only difference being the active ingredient in the test gel.