Methods for Nasogastric Tube Placement Verification

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Background

The primary interventions found during the background search included pH testing, x-ray, and NEX measurement (nose-ear-xiphoid process). Aspirate pH testing was the most prevalent result. This project is valuable to evidence based practice because there is limited evidence identifying reliable methods for bedside NG tube placement verification. Many hospitals still utilize the air-bolus and auscultation method, but evidence shows that this is no longer a safe or reliable confirmatory measure.

Searchable PICO: In patients with NG tubes, how does pH testing of gastric aspirate affect verification of correct tube placement?

The initial background search provided the most common interventions and searchable terms related to NG tube placement, which led to the formation of a PICO. The population of interest was patients requiring NG tubes, intervention was pH testing of gastric aspirate and outcome was verification of correct NG tube placement. Various databases were searched including CINAHL, PubMed and Cochrane. Search terms and combinations were (NG OR Nasogastric OR Feeding Tube) AND pH OR Gastric Aspirate AND (Placement OR Position).

Synthesis of Evidence

The following table provides a synthesis of appraised evidence. A “yes” indicates the study recommends the method, a “no” indicates the study did not recommend the method, a “?” indicates it was not studied, and “inconclusive” indicates the study did not find sufficient evidence to approve or disapprove a method.

<table>
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<th>Interventions</th>
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<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>INCONCLUSIVE</td>
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<td>Aspirate Visualization</td>
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<td>NO</td>
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Recommendations for Practice

1. The NG tube needs to be measured using the XEN+10 method prior to insertion.
2. X-ray is always the gold standard for checking initial placement.
3. There should be two bedside methods used for ongoing placement verification.
4. Auscultation is not a reliable method to use for verification.
5. The two best methods found are pH testing and marking the exit site from the nose with a marker.
6. If there is any question about movement such as a pH above 4.0 or the mark on the tube deviating up or down from the nostril, another x-ray to check placement should be obtained.

Implications for Further Research

Although there is no single method upon which researchers agree can be used for continuous bedside monitoring of NG tube placement, all studies that evaluated auscultation state that it should not be used to confirm location. Nevertheless, many hospitals still utilize this method, despite current evidence. Research should be disseminated to hospitals, and studies may be done to evaluate the outcomes of the recommended practice when implemented, compliance to these interventions, and further investigation of bedside methods to confirm NG tube placement.

References


Williams, B., Mowbray, K., & Dusy, B. (2012). Gastric Tube Depth: The “NEX” guideline. AACN Critical Care Nursing, 23(1), 55-60.