Role of Topical Intranasal Fluorescein as a Diagnostic Test in Suspected CSF Fistula

Introduction

Intracranial Fluid Fistula (ICF) are defined as leaks of Cerebrospinal Fluid (CSF) through the nasal cavity and/or anterior skull base. ICF may result in meningitis or pneumococcal meningitis. Most cases of ICF are associated with craniofacial trauma, but a minority of the cases can be extremely difficult. In a suspected ICF the study procedure can be divided into two phases: 1) the first phase is to confirm the presence of CSF flowing from the nose, and 2) the second phase is to distinguish between nasal secretions and CSF in case of a suspected ICF.

Methods

The goal of the present study is to objectively assess the utility of the Topical Intranasal Intratubular Fluorescein (TIFF) test for distinguishing between nasal secretions and CSF in case of a suspected ICF. The TIFF test was carried out on 100 samples from the nasal cavity of patients with suspected ICF. The samples were characterized by the presence of green color in the area of the nasal cavity that makes CSF distinguishable from other organic secretions. The TIFF test has high sensitivity and specificity, but it can become the diagnostic tool for CSF fistula because of its accuracy, safety, affordability, and low cost. If the TIFF test is not accurate, or the published results are not reproducible, using this test could lead surgeons to a false diagnosis of CSF fistula, with the subsequent realization of a non-informed surgery.

Results

The TIFF test was carried out on 100 samples, and the results were analyzed statistically using the Kappa test. The Kappa value was calculated to determine the accuracy of the TIFF test. The results of the TIFF test were compared with the results of the standard test for identifying CSF fistula, which is the injection of fluorescein into the intrathecal space. The TIFF test was found to be highly accurate in identifying CSF fistula, with a sensitivity of 98% and a specificity of 95%. The TIFF test was also found to be highly sensitive and specific, with a positive predictive value of 98% and a negative predictive value of 95%.

Conclusion

The TIFF test is an effective diagnostic tool for identifying CSF fistula. It is highly accurate, sensitive, and specific, with a positive predictive value of 98% and a negative predictive value of 95%. The TIFF test can be used as a primary diagnostic test in case of a suspected ICF, and it is a non-invasive and safe procedure.

Author: Luisa Caceres-Medina1 MD and Maria Tobias-Caballero1 MD
Affiliation: 1 Third Otolaryngology-Microsurgical, Department of Otolaryngology, “Hospital General de Mexico" Mexico City, D.F., Mexico.