

Research Article

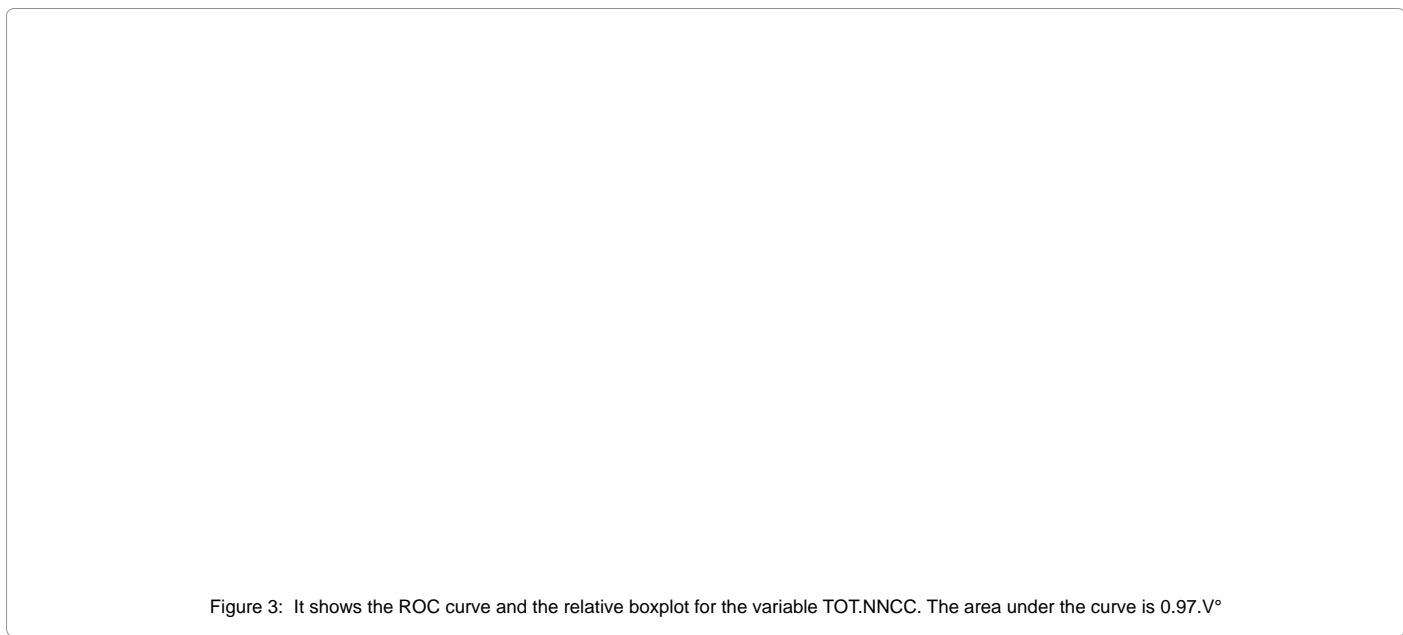
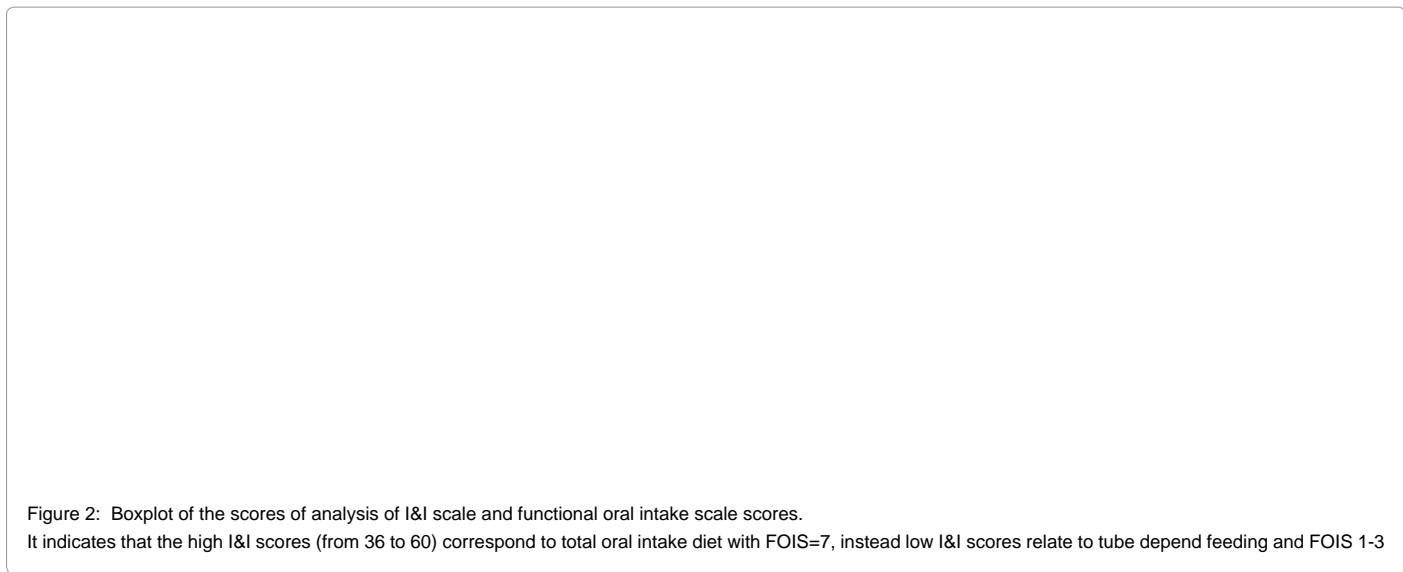
*Corresponding author:

was video-recorded in order to allow inter-rater reliability. Secondly, the instrumental evaluation of swallowing (FEES) was conducted. The otolaryngologist in charge of the examination was blind to the cranial nerve outcomes.

Results

We recruited 85 persons (F: 37-56%; M: 48-44%). The majority presented with a diagnosis of stroke (n=34, 40%); followed by Amyotrophic Lateral Sclerosis-ALS (n=17, 20%); Parkinson's disease (n=14, 16%); Traumatic Brain Injury (n=10, 12%); Head and Neck Cancer (n=10, 12%). The age varied from 18 to 83 years (mean 56.3 ± 18.2) and did not influence dysphagia severity (Test Kruskal-Wallis $KW_{test}=5.258$, p-value=0.072). Descriptive information are summarised in Table 1. The total scores of I&I ranged from 6 to 60 (mean $39.1 \pm 14.$). Nineteen patients (22%) did not show dysphagia at bro-endoscopic evaluation reporting PAS=1 (Table 1). The I&I score ranged from 44 to 59. Among the 66 (88%) persons with dysphagia: 42 (50%) of them presented mild-moderate dysphagia (PAS from 2 to 5) with I&I scores from 22 to 44 (mean 40 ± 5.31) and 24 (28%) of them presented severe dysphagia (PAS from 6 to 8) with I&I scores from 22 to 40 (mean 32 ± 5.14). We found a significant difference between PAS values and the total I&I scores ($KW_{test}=38.07$, p-value<0.001). Figure 1 shows that high PAS scores correspond to low I&I scores, revealing that persons with dysphagia performed poorly at the I&I. A significant difference was found also between FOIS and I&I scores ($KW_{test}=42.43$, p-value<0.001), indicating that persons with severe difficulties in oral intake had low I&I scores. The ROC curves (Figure 2) showed that the area under the curve (AUC) was (0.97) and the interval of confidence 0.841-1. The total scores of I&I presented good sensitivity (89%) and specificity (93%) at the cut-off value 43,5. The cut-off was obtained with the minimum criterion of Youden Index. In addition, the cranial nerve with higher sensitivity and specificity are trigeminus, glossopharyngeal and hypoglossum nerve; Table 2 summarized all the information for each nerve.

Finally, the analysis of inter-rater reliability showed high values of agreement between scores of two examiners. (ICC=0.85) (Figure 3 and



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