OFFICE BTA STAT VERSUS LABORATORY BTA TRAK AND NMP22 TEST: COMPARISON STUDY

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INTRODUCTION AND OBJECTIVES: The aim of this study was to compare the results of the rapid, office based qualitative BTA stat with the laboratory based quantitative BTA TRAK and NMP22 test in screening and monitoring patients at risk for bladder cancer.

METHODS: A cohort of 239 patients at risk for bladder cancer submitted a single voided urine sample. Each urine sample was split into three parts. The first aliquot was used for BTA stat test, the second by BTA TRAK, and the third assayed for NMP22. Of the 239 patients, 162 (68%) were incident (screening) cases, and 77 (32%) were prevalent (known) cases. In the incident group, 89 (37%) presented with microscopic hematuria, 62 (26%) with gross hematuria and 88 (36.8%) with other chronic irritative voiding symptoms. The qualitative BTA stat test was read as positive or negative. The BTA TRAK was considered positive at a cut off value of >14U/mL. NMP22 was considered positive at a cut off value of >10U/mL for incident (screening) cases; and at >6U/mL for prevalent (known) cases.

RESULTS: In these 239 patients, 3% (4/162) were incident cancers and 26% (20/77) prevalent cancers. The overall sensitivity and specificity of these 3 tests were as follows: BTA stat (79%, 79%), BTA TRAK (79%, 59%), and NMP22 (88%, 79%). The overall specificity of the BTA TRAK was lower to both BTA stat and NMP22 ($p < 0.05$). The sensitivity and specificity of the 3 tests in incident group was as follows: BTA stat (75%, 80%), BTA TRAK (75%, 60%), and NMP22 (100%, 85%), and in the prevalent cases; 85% and 75% for BTA stat, 85% and 54% for BTA TRAK, and 85% and 61% for NMP22. The sensitivity and specificity of BTA TRAK was inferior to the other two tests in both the incident and prevalent groups ($p < 0.05$).

CONCLUSIONS: Our results show that the qualitative office based BTA stat test has similar sensitivity and specificity as the two quantitative laboratory tests: BTA TRAK and NMP22. Of the two laboratory based tests, NMP22 appears to be clinically superior to BTA TRAK due to its higher specificity.