Vacuum-assisted biopsy in the era of low-risk ductal carcinoma in situ active monitoring: real world data and implications

H. L. Couto1, C. N. Valadares2, A. N. Soares3, B. T. Silva1, B. F. Ricardo4, P. H. Toppa5, B. A. Coelho6,7, at al
1Redimama-Redimasto Breast Unit, Belo Horizonte, Brazil, 2Hospital Paulistano, São Paulo, Brazil, 3Faculdade de Saúde Santa Casa BH, Belo Horizonte, Brazil, 4Anatomia Laboratory, Belo Horizonte, Brazil, 5Faculty of Medical Sciences of Minas Gerais, Belo Horizonte, Brazil, 6Mater Clínica, Montes Claros, Brazil, 7UNIFIPMOC University Center, Montes Claros , Brazil.

Introduction

The short-term oncological safe of active monitoring for ductal carcinoma in situ (DCIS) with low risk (LR-DCIS) of progression to invasive cancers (IC) has been demonstrated. This study evaluates vacuum assisted biopsy (VAB) as diagnostic test for LR-DCIS active monitoring (AM) in real world clinical practice.

Methods and Materials

Database analysis of 116 cancers [both invasive breast cancers (IC) and ductal carcinoma in situ (DCIS)] diagnosed by VAB submitted to standard surgical treatment with complete histological data from VAB and surgery from 04/13/ 2017 to 11/28/2020. The VAB results matched the surgical pathology, considered the gold standard, and AM criteria. The pathological diagnoses were grouped into malignancies requiring guideline surgical treatment [DCIS with high risk (HR DCIS) of progression to IC or IC] versus those eligible to alternative AM (LR-DCIS). HR-DCIS/IC were considered positive while LR-DCIS negative results. VAB sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV), and accuracy were obtained (Fig. 1).

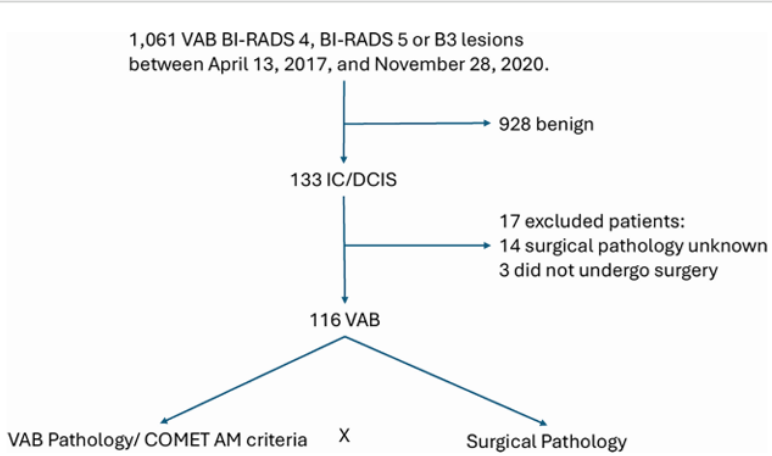


Fig 1: Study design

Results

Mean age 55.6 [± 12.27]; mean IC size 7.14 [± 5.17]mm and 12.6 [± 11.63] mm for DCIS. Out of 116 malignancies diagnosed by VAB, 15 (12.9%) resulted LR DCIS in the biopsy, 10 (8.6%) confirmed LR-DCIS in surgery, and 5 (4.3%) upgraded to HR-DCIS/IC in surgery. VAB showed 95.28% (89.3–98.5; 95% CI) sensitivity, 100% (69.2–100; 95% CI) specificity, PPV was 100% (96.4–100; 95% CI), and NPV 66.67% (38.4–88.2; 95% CI). VAB LR-DCIS AM was 6.9% (8/116) and underdiagnoses 2.6% (2 pT1a-bN0 hormone receptor positive and 1 HR-DCIS) (Fig 2, Table 1).

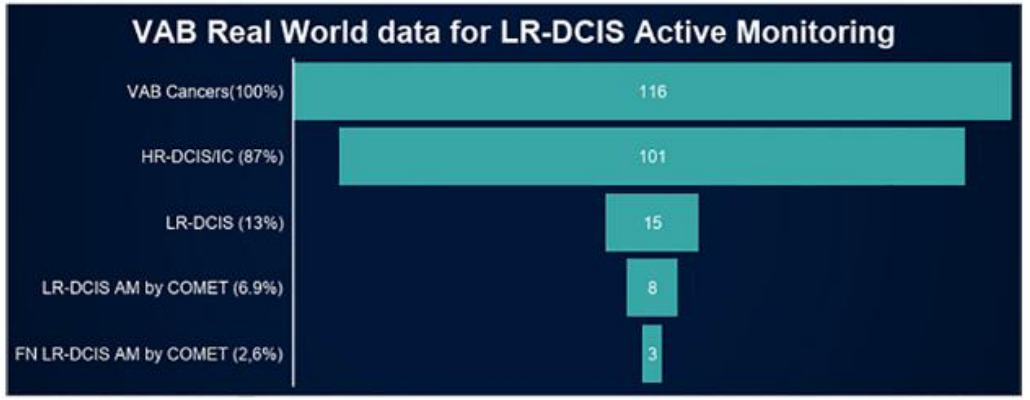


Fig 2: VAB real world data for Active Monitoring.

	VAB (IC 95%)
Sensitivity	95.3% (89.3–98.5)
Specificity	100% (69.2–100)
PPV	100% (96.4–100)
NPV	66.7% (38.4–88.2)
Accuracy	95.7% (90.2–98.6)

Table 1: VAB results.

Conclusions

VAB LR-DCIS AM would lead to a moderate (6.9%) overall reduction of short-term breast cancer surgical overtreatment counterbalanced by a low rate (2.6%) of underdiagnosed HR-DCIS/IC potentially treatable by adjuvant hormone therapy.

Henrique Lima Couto.
Redimama-Redimasto Breast Unit
enriquecouto@hotmail.com
+55 31 999945973

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