Surgical Considerations in Breast Cancer treated with Neoadjuvant Therapy

Rebecca Warburton MD
Department of Surgery, University of British Columbia
Mount Saint Joseph Hospital, Providence Health Care
Vancouver, BC

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No disclosures

Outline

- Who?
- Why?
- Breast
  - BCS v. Mastectomy +/- IBR
- Axilla
  - N0 v. N1

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NAT: WHO?

- Inflammatory breast cancer - a must
- Inoperable breast cancer
  - skin involvement, fixed tumour, matted adenopathy
- Operable cancer…
  - triple negative, HER 2 pos
  - palpable - primary or nodes
- Research patients

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NAT: WHY?

- Inoperable LABC to operable BC
- Convert mastectomy to BCS
- Cosmetics:
  - “large” lumpectomy to “small” lumpectomy
  - mastectomy to skin sparing mastectomy with IBR
- Convert ALND to SLNB in cN0 and cN1*
- Access to resources - OR time, IBR
- pCR - prognosis, guide adjuvant treatments

Diagnosis to Treatment (NAT or Surgery)

- Breast: Core biopsy - histology, biomarkers
    - if pCR - only tumour information
    - extent of disease - physical exam, mammography, US +/- MRI
    - Tumour localization - Clip
- Axilla - non invasive and minimally invasive
    - Physical exam - error rate 41%, false pos 53%, 10mm
    - Axillary US +/- FNA or core abnormal nodes, sensitive up to 76%, 5mm
    - SLNB pre-NAT - controversial - to be continued…

NAT and SURGERY

- Guiding Principles:
  - NAT can increase surgical options
  - No change to OS or DFS
- NSABP B-18 (1997)
  - Clinical Response
    - Partial - breast 80%, axilla 89%
    - Complete - breast 36% (1/4 pCR), axilla 73% (~1/2 pCR)
- pCR more likely in Her 2 + and triple negative breast cancer

BREAST

- BCS after NAT
  - IBTR
  - Margins
    - Failure - Lobular histology, multicentric disease, diffuse calcs
- Mastectomy after NAT
  - immediate breast reconstruction - SSM and NSM

BREAST - BCS and NAT

- IBTR - increased rates of BCS with NAT (12%)
  - RCT - BCS gives acceptable local control
    - NSABP B-18, EORTC 10902
  - Meta-analysis - NAT v adjuvant chemo - small but significant increase in LRR with NAT
    - No difference in all patients undergo surgical resection
    - Cochrane Review 2007 (CD005002)

BREAST - BCS and NAT

- IBTR
  - Predict LRR - MD Anderson prognostic tool
    - N2/3 (clinical), residual tumour of 2cm (pathology), multifocal tumour pattern (pathology), LVI

Risk Stratification	Score	5yr IBTR-free survival	5yr LRR-free survival
Low	0-1	97%	94%
Intermediate	2-3	88%	83%
High	4	82%	58%

BREAST - MASTECTOMY and NAT

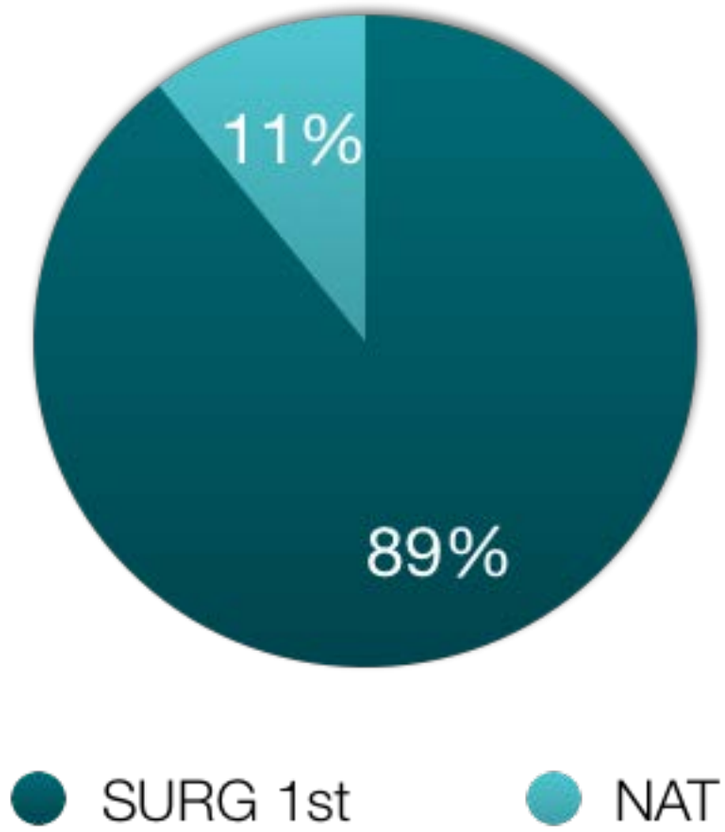
- Mastectomy - limited response to NAT, multicentric disease, failed BCS
- Immediate breast reconstruction: SSM, NSM
- NAT
  - less likely to have IBR after mastectomy - 23% v. 44%
  - More likely to have delayed BR - 21% v. 14%
    - Hu Cancer 2012 Jul 1;117

BREAST - MASTECTOMY and NAT

- Wound complications - ACS-NSQIP
  - NAT does not increase risk of wound complications (3.4% v 3.1%)
  - trend towards increased wound infection with NAT and IBR (OR, 1.58)
    - Decker, Surgery 2012 Sep;152(3)

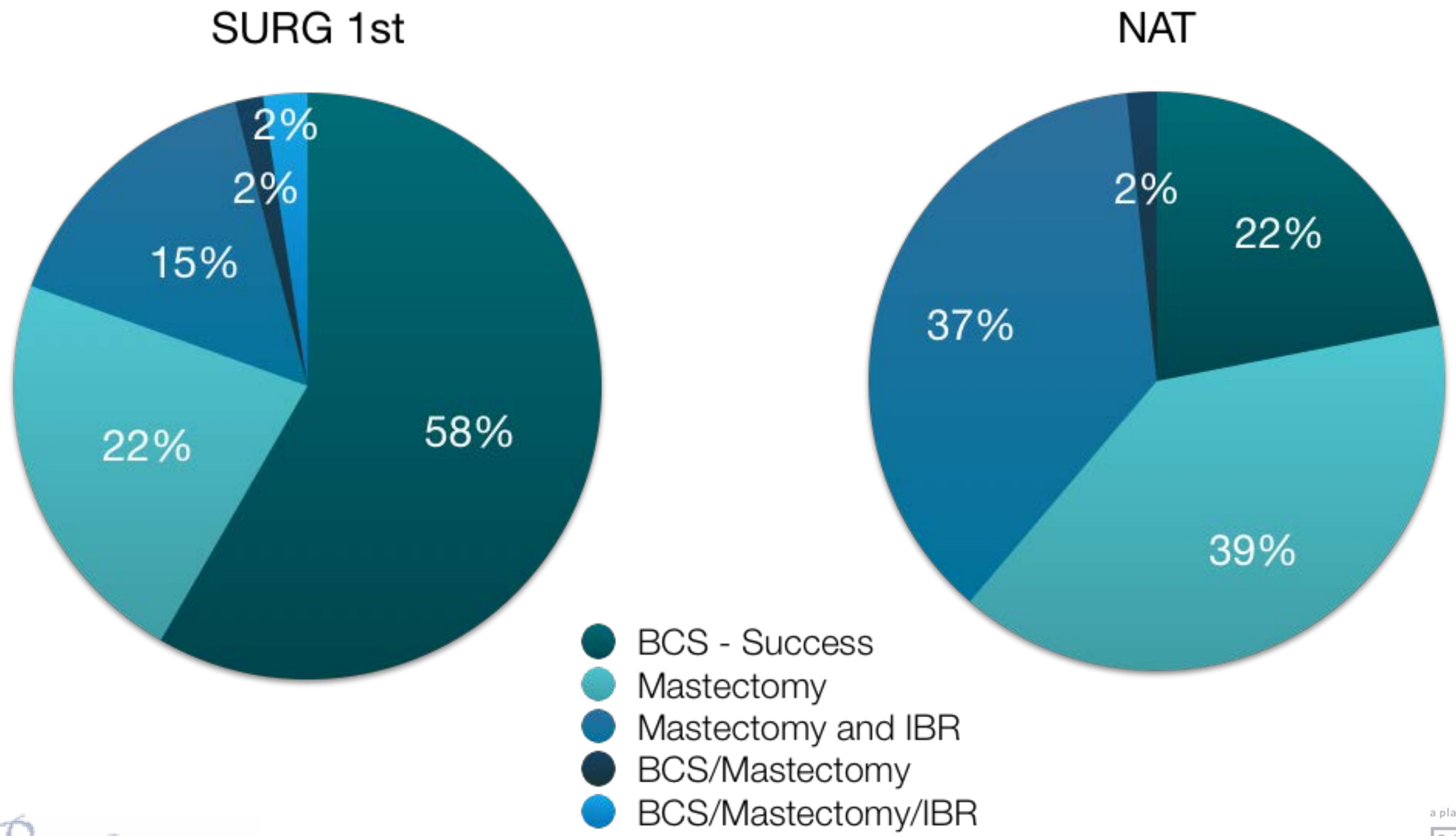
Invasive Breast Cancer at PHC BC

Jan 1, 2012 - Dec 31, 2015
n= 1666



Exclude recurrence and DCIS

Invasive Breast Cancer at PHC BC



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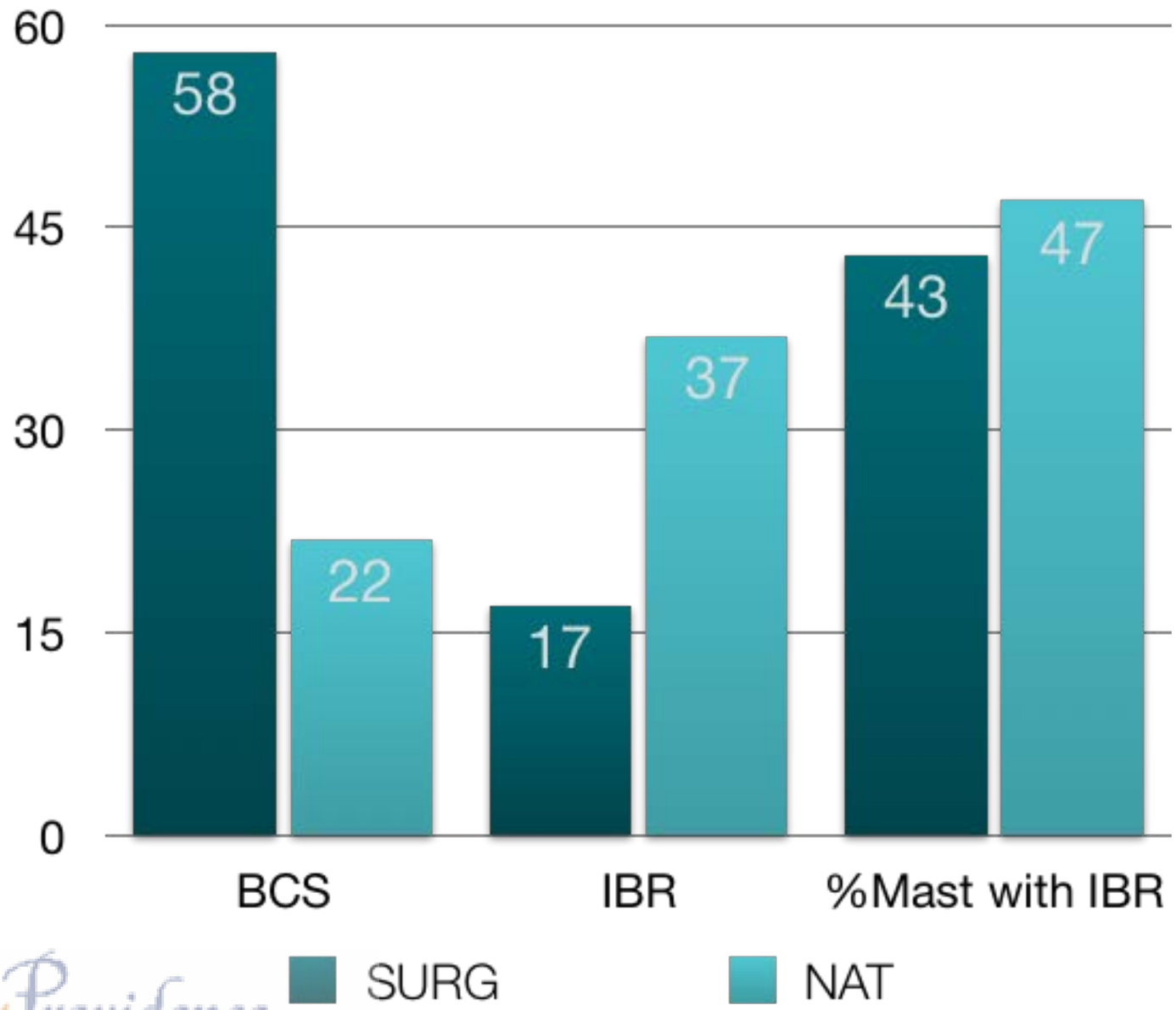
Invasive Breast Cancer at PHC BC

- NAT increases BCS by 12% and reduce IBR by 50%



BCS failure rate
NAT - 7%
SURG - 6%
pCR rate
ALL - 33%
BCS - 43%
Mast - 30%

AXILLA - NAT

- Guiding principles:
  - large tumours considering NAT will often be node positive (60-80%)
  - Clinically negative - exam and imaging (US)
  - N1 - should be pathology not imaging
  - Decision on axilla management should be made by surgeon at consultation

AXILLA - N0

- SLNB
  - post-NAT - early studies (2000-2005) had variable and unacceptable rates of
    - identification of SLNs - 70-100%
    - false negative rates - 0-39%
- REMINDER - NSABP B32 - ID 97.1% and FNR 9.8%

AXILLA - N0

- MDACC - Hunt, Ann Surg 2009
  - T1-3,cN0 SLNB 1994-2007 n=3746
  - 15% NAT, 85% surgery
    - ID rate - 97.4% NAT v. 98.7% Surg
    - FNR - 5.9% NAT v. 4.1% Surg
    - Fewer SLN +ve patients in NAT (presenting T stage)
- Conclusion: SLNB after NAT is as accurate as SLNB prior to chemotherapy. Fewer ALND and reduced morbidity
- REMINDER - NSABP B32 - ID 97.1% and FNR 9.8%

AXILLA - N0

- SLNB after NAT - multi-centre data, T1-3,N0-1
  - NSABP B-27 - 2005, n=428 (no defined protocol)
    - ID 85% (BD+RD 88%)
    - FNR 11% (BD+RD 9%)
  - GANEA - 2009, n= 195 (BD+RD)
    - ID cN0 94.6% v. cN1 81.5%
    - FNR cN0 9.4% v. cN1 15%
  - REMINDER - NSABP B32 - ID 97.1% and FNR 9.8%

AXILLA - N1

- Most surgeons comfortable with SLNB after NAT in N0
- N1 - 1990s - MDACC T1-4,N1-3 (FNA or core LN) n=69
  - SLNB after NAT - ID 92.8% but FNR 25%
    - deemed feasible but FNR too high
    - Issues: small, advanced disease (T4N3)
    - Added post-NAT axillary US - ID 93% and FNR 20%

NSABP B32 - ID 97.1% and FNR 9.8% MDACC (N0/NAT) - ID 98.7% and FNR 4.1%

AXILLA - N1

- Prospective Studies - Tany,N1-2 - NAT - SLNB+ALND
  - Alliance/Z1071 - n=756, single arm
    - FNR - 2+nodes removed
  - SENTINA - n=592, 1 of 4 arms
    - ID and FNR, not all path N1, repeat SLNB (not recommended)
  - SN FNAC - n=153, single arm
    - accuracy/feasibility

NSABP B32 - ID 97.1% and FNR 9.8% MDACC (N0/NAT) - ID 98.7% and FNR 4.1%

AXILLA - N1

TABLE 2 FNR according to number of SLNs removed and type of lymphatic mapping in three prospective trials of SLNB after NC in patients with documented axillary nodal involvement at presentation

	ACOSOG Z1071[86] ($n = 756$)	SENTINA[87] ($n = 592$)	FN SNAC[88] ($n = 153$)	Across studies
FNR with single SLN	31.5 %	24.3 %	18.2 %	26.0 %
	17/54	17/70	4/22	38/146
FNR with ≥2 SLNs	12.6 %	9.6 %	4.9 %	10.8 %
	39/310	15/156	3/61	57/527
FNR with >2 SLNs	9.1 %	4.9 %	N/A	7.8 %
	20/220	5/102		25/322
FNR with dual tracer	10.8 %	8.6 %	5.2 %	10.3 %
	27/251	6/70	3/58	33/321

FNR false-negative rate, *N/A* not available

- FNR decrease with dual tracer and 2+ nodes removed

- Mamounas, Ann Surg Oncol 2015

AXILLA - N1 - Novel ways to reduce FNR with TAD

- Feasibility studies
- MDACC - clips in nodal metastasis, SLNB with no clip - 25%, ALND in all patients (SSO, 2015)
    - TAD - targeted axillary dissection + SLNB
        - removed clipped node (wire)
        - Radioactive seed localization - clip node, 5d prior to surgery seed inserted (iodine), RD+BD
- Netherlands - radioactive seed at diagnosis, only removed seed with gamma probe and ALND (no SLNB)
    - ID 97%, FNR 7%

AXILLA - N0 and N1

- N0 after NAT is a predictor of good prognosis (NSABP B-17, 18)
  - did NAT render them N0 or were they always N0
- up to 42% ALND after NAT in N1 will be N0 (Alvarado, Ann Surg Oncol 2012)
  - SLNB can accurately remove those nodes and avoid ALND?
- ID rate - ALND as default
- SN FNAC - accuracy of axillary status after NAT
  - Clinical exam 45%, US 62%, SLNB 95%
- Any SLN pos after NAT requires ALND….. currently

AXILLA - N1 The FUTURE

- NSABP 51/RTOG 1304 -
  - cN1 - NAT - SLNB/ALND N0- RTx v. no RTx
- Alliance A11202
  - cN1 - NAT - SLNB positive - RTx v. RTx and ALND
- MDACC
  - cN1 - NAT - FNA v. surgery

Summary

- NAT for inflammatory BC and inoperable LABC
- Patient selection for NAT in operable BC - think pCR
  - Her 2 + and triple negative
- Surgical plan - set at consultation and adjusted based on clinical response
- BCS after NAT - LRR is equal, beware of multifocal response and + margin
  - Consider pre-chemo and pre-surgery imaging (MRI)
- Mastectomy and IBR after NAT - safe

Summary

- Axilla responds better then breast
- cN0 - SLNB after NAT is accurate, reduces over treatment of chemosensitive disease and morbidity
- cN1 - ? standard ALND
    - SLNB is feasible and accurate - to start be selective
        - 2 or more nodes, dual tracer
        - clipping nodes and TAD - ugh
            - fixing a problem that we may not have?

Thank You


Just a reminder that mammogramming your boobs is more important than Instagramming them.
someecards