World Journal
of Surgery

Must Breast Care Delivery Models from Resource-Rich Environments be Applied to Resource-Limited Environments?

Justus Apffelstaedt · John P. Mouton · Karin Baatjes

In their comment [1] on our paper [2], Drs. Anderson and Azavedo, both from resource-rich environments, contend that we have abandoned the BIRADS [3] approach to mammography interpretation. It seems to us that the commentators did not read the article's *Methods* section properly. We state explicitly that image interpretation was based on BIRADS categorization of mammography. The commentators apparently are not aware of the complex, resource-intensive follow-up required by BIRADS for category 3 lesions; otherwise, they might have concluded that in a resource-restricted environment such follow-up may be problematic. As clinicians, we are acutely aware of the situation of our indigent patients and the need to make a definitive diagnosis in as few steps as possible. In a resource-restricted environment, collapse of BIRADS 3 and 4 lesions into one category makes sense.

The commentators further state that "in the absence of ultrasound evaluation the value of mammography is unclear." We refer the commentators to Ciatto and Houssami, who in an evaluation of ultrasound vs. mammography in more than 1,000 palpable masses concluded that "using only one imaging test in combination with needle biopsy provides a maximum sensitivity, with little potential to further increase diagnostic sensitivity through additional imaging" [4]. Furthermore, there is to our knowledge no scientific evidence defining the place of ultrasound in the selection of patients for breast-conserving therapy of breast cancer. Contrary to the commentators' contention, mammography is mandatory in primary breast cancer management to detect multicentricity and for detection of recurrence in follow-up; these indications are entrenched in many guidelines [5–7]. We strongly disagree with the commentators' implied suggestion that third-world women should have substandard management, which is at odds with their professed commitment to quality of care. As our paper demonstrates that with the limited resources at our disposal, we diagnose cancer accurately, discover recurrence early, and screen with little harm done—all in line with the results published by radiologist authors as detailed in the *Discussion* section of our paper. We reject the commentator's supposition of inferior quality of care delivered to our patients.

In their narrow focus on the alleged shortcomings of our paper, the commentators miss its wider significance: a PubMed search with the terms "mammography" and "limited resources" or "developing countries" did not reveal a single series examining the indications and results of mammography. Comments on the place of mammography, and indeed the issue of guidelines for mammography in such environments, are at best based on extrapolation from resource-rich environments and at worst pure speculation lacking appropriate scientific basis. Our data establish that mammography here is mostly done for screening indications (screening for high risk or follow-up of cancer), which in our series constituted 83% of all examinations. The existence of pure "symptomatic" mammography in developing countries is in our opinion a myth. Therefore, policies such as placing mammography machines into low-volume peripheral hospitals, which is being attempted currently in South Africa, in an ill-advised attempt to "bring breast care to the people" are in our

J. Apffelstaedt (✉) · J. P. Mouton · K. Baatjes
Breast Clinic, Department of Surgery,
University of Stellenbosch, P.O. Box 19063,
Tygerberg, Cape Town 7505, South Africa
e-mail: jpa@sun.ac.za

Springer

opinion a deplorable waste of scarce resources because there is little expertise in the performance and interpretation of screening-quality mammography and no provision for management of the results at that level. A pragmatic approach to capacity development should start at tertiary hospitals where the results of follow-up of patients with breast cancer are integrated into assessment of service quality. Once a predefined level of quality and volume is reached the service can be extended. Our paper establishes the first reference point for such quality levels, notably for mammography in the follow-up of breast cancer where there is a paucity of data even for resource-rich environments. We invite *authors from resource-restricted environments* to publish their series and comment on ours to help define the place of mammography in our health systems.

Lastly, Africa, in common with the much of the developing world, has a shortage of radiologists and the lack of educational resources, specifically in mammography, is well documented [8]. Under these conditions, alternatives to traditional models of service provision must be sought. A number of series have examined mammography reading and performance of interventional diagnostics by surgeons. A common finding is that breast surgeons are proficient at mammography interpretation at a level comparable to radiologists [9–14]; some authors found surgeons to be more cost effective and convenient for patients [11, 12]. We feel well supported in our contention that the lack of breast radiologists must not prevent the establishment of breast services as long as breast surgeons are available to provide quality-controlled mammography reporting. Indeed, mammography reporting by breast surgeons is in our opinion more patient-friendly and resource-appropriate than the traditional model of separation of clinical and imaging services that informs the commentators' thinking. Is there perhaps something that can be learned from our experience for resource-rich environments?

References

1. Anderson BO, Azavedo E (2010) Balancing resource constraints against quality of care. World J Surg. doi:10.1007/s00268-010-0677-z
2. Mouton JP, Apffelstaedt J, Baatjes K (2010) Surgical mammography reporting in a limited resource environment. World J Surg (in press). doi:10.1007/s00268-010-0530-4
3. American College of Radiology (2003) ACR breast imaging reporting and data system, 4th edn. American College of Radiology, Reston
4. Ciatto S, Houssami N (2007) Breast imaging and needle biopsy in women with clinically evident breast cancer: does combined imaging change overall diagnostic sensitivity? Breast 16(4):382–386
5. Kaufmann M, Morrow M, von MG, Harris JR (2010) Locoregional treatment of primary breast cancer: consensus recommendations from an International Expert Panel. Cancer 116(5):1184–1191
6. Parikh JR (2007) ACR appropriateness criteria on palpable breast masses. J Am Coll Radiol 4(5):285–288
7. Pestalozzi B (2007) Primary breast cancer: ESMO clinical recommendations for diagnosis, treatment and follow-up. Ann Oncol 18(Suppl 2):ii5–ii8
8. Rabinowitz DA, Pretorius ES (2005) Postgraduate radiology training in sub-Saharan Africa: a review of current educational resources. Acad Radiol 12(2):224–231
9. Burns RP, Brown JP, Roe SM, Sprouse LR, Yancey AE, Witherspoon LE (2000) Stereotactic core-needle breast biopsy by surgeons: minimum 2-year follow-up of benign lesions. Ann Surg 232(4):542–548
10. Rao MC, Griffith CD, Griffiths AB (2001) Can breast surgeons read mammograms of symptomatic patients in the one-stop breast clinic? Ann R Coll Surg Engl 83(2):108–109
11. Roe SM, Mathews JA, Burns RP, Sumida MP, Craft P Jr, Greer MS (1997) Stereotactic and ultrasound core needle breast biopsy performed by surgeons. Am J Surg 174(6):699–703
12. Sterns EE (1997) Changing emphasis in breast diagnosis: the surgeon's role in evaluating mammographic abnormalities. J Am Coll Surg 184(3):297–302
13. Stolier AJ (1997) Stereotactic breast biopsy: a surgical series. J Am Coll Surg 185(3):224–228
14. Vidya R, Dixon JM (2001) Should surgeons as well as radiologists report mammograms in symptomatic patients? Breast 10(2):140–142