

Intraoperative Radiotherapy for Breast Cancer: Is it suitable for Tanzania?

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INTRODUCTION:

Intra-operative Radiotherapy (IORT) is a technique that is thought to have a comparable beneficial effect of reducing local recurrence of breast cancer without the side effects of external beam radiotherapy (EBRT). (3) A course of EBRT post breast conserving surgery is usually 3-6 weeks. In developing countries this can lead to unfeasible costs leaving mastectomy as the sole surgical treatment option. This project was undertaken to assess the benefit of implementing IORT for operable breast cancer in Tanzania.

METHOD:

A literature search was conducted to collect data on the prevalence of breast cancer in Tanzania and which treatment and resource options are available. Financial analysis was carried out on a clinic offering mastectomies and external beam radiotherapy. This was compared with the breakdown of cost required to deliver IORT.

RESULTS:

Breast Cancer In Tanzania:

- 2nd most common cancer presenting in women.
- Age of presentation is young.
- 70-80% of african women present with stage III or IV disease.
- Limited diagnostic and treatment capacities. (2)



Limitations to healthcare in Tanzania:

Education: Patient and Doctor limitation of knowledge on presentation and breast disease. Therefore late patient presentation and in-appropriate disease management.

Financial: Patients are referred to large hospitals for sometimes inappropriate treatment. The financial burden of the treatment and living costs (incl. transport) is often too great for patients.

Infrastructure: Primary limiting factor, the financial limitations of Tanzania leave the infra-structure weak. Electricity sharing limiting the availability of radiotherapy. Without this basis, it is almost impossible to enable an effective and viable change to the current treatment.

TABLE 1.1

	1 unit	Mastectomy	EBRT	IORT
Electricity	100.65	100.65	100.65	100.65
Fuel (per/unit)				
Doctor	304.63	304.63	304.63	304.63
Nurse	162.47	487.41	487.41	324.94
Clinic Bed (0-1 hour)	0.48	-		
Clinic bed (0-4 hourly)	1.44	60.48	17.28	8.64
IV drugs	1.20	8.40	2.40	1.20
IV Fluids	1.20	9.60	4.80	3.60
New patient	1.92	1.92	1.92	1.92
Suture Complex	3.12	3.12	3.12	
Suture Simple	2.40	-		2.40
Incision	3.12	3.12	3.12	3.12
Blood Group	1.44	1.44	1.44	1.44
CRP	1.44	4.32	7.20	1.44
Haemoglobin	1.44	2.88	5.76	2.88
White Blood Cells	1.44	4.32	4.32	1.44
Total (£)	588.39	992.29	944.05	758.3

TABLE 1.1: Breakdown of cost for components required for various Breast Cancer procedures Vs. IORT pricing. Cost values sourced from 2011 review of Nyakato Health Centre, compiled by Business Analyst Kyle Landau.

Pricing per unit of service has been shown as well as the number needed of each unit per operation. Number of units needed compiled from data collection at Nyakato. (source: Catherine King, 2011)

CONCLUSION:

IORT has been objectively proven to be viable and financially beneficial in Tanzania for breast conserving surgery.

Approx. £200

Limitations of current implentation are needs to adapt basic infrastructure such

Reference:

- 1) Guideline Implementation for Breast Healthcare in Low-Income and Middle-Income Countries Overview of the Breast Health Global Initiative Global Summit 2007; Benjamin O. Anderson, MD1,2 Cheng-Har Yip, MD3 Robert A. Smith, PhD4 Roman Shyyan, MD5 Stephen F. Sener, MD6,7 Alexandru Eniu, MD, 8 Robert W. Carlson, MD9 Edward Azavedo, MD10 Joe Harford, PhD11
2) http://www.mewata.org/docs/MEWATA_BREAST_CANCER_REPORT_2010.pdf
3) Targeted intraoperative radiotherapy (TARGIT) yields very low recurrence rates when given as a boost; Jayant S. Vaidya M.B.B.S., M.S., D.N.B., F.R.C.S., Ph.D., F.R.C.S. (GEN), . . . Michael Baum M.B., F.R.C.S., C.H.M., M.D.(HON), F.R.C.R.(HON) †, Jeffrey S. Tobias M.D., F.R.C.R. †, Samuele Massarut M.D.§, Frederik Wenz M.D.‡, Olive Murphy B.Sc. †, Basil Hilaris M.D., Joan Houghton B.Sc. †, Christobel Saunders M.D., F.R.C.S.¶, Tammy Corica B.Sc.¶, Mario Roncadin M.D.§, Uta Kraus-Tiefenbacher M.D.‡, Frank Melchaert M.D.‡, Mohammed Keshtgar F.R.C.S. †, Richard Sainsbury F.R.C.S. †, Michael Douek F.R.C.S. †, Ely Harrison B.Sc. †, Alastair Thompson M.D., F.R.C.S. and David Joseph M.D.¶