FACTORS ASSOCITED WITH THE DEVELOPMENT OF BREAST ABSCESSES IN WOMEN PRESENTED TO THE UNIVERSITY TEACHING HOSPITAL, LUSAKA.

BY

DR. BERNARD KAPATAMOYO

A dissertation submitted in the partial fulfillment of the requirement for the award of the master of medicine general surgery degree of the
University of Zambia

Supervisors:

Prof. G. desai (General Surgery), MBBS,FRCS Ed. FCS(ECSA)

MR. K. BOWA (Urology), MSC, M.Med, FRCS Glasscow, FCS (ECSA)

School of Medicine

The University of Zambia

Lusaka

2010

ABSTRACT

A case controlled study to determine factors associated with the development of breast abscesses it women presenting to the UTH was designed and conducted over seven months.

110 cases and controls were serially recruited for the study. Blood for HIV and CD4 counts as well as pus aspirates were collected for analysis from each patient. Epidemiological, socio-demographic, and medical history data of patients was also collected.

Over 70% of cases were below 25yrs and had either one or two children. Age range of infants involved was between 0-6months. 85.5% of clients were married though only 31% were housewives.

76.4% cases came from high-density suburbs with all patients attaining some form of education (primary or secondary). Cigarette smoking and alcohol drinking was not a common habit amongst respondents (3.6% smoking and 30% drinking) with no statistical significance. Most patients' breastfed adlib (79.5%) and all claimed to have visited the antenatal clinic during their pregnancies. Despite the good antenatal attendance, 39.1% did not know cause, 35.5% thought it was due to child belching and 14.5% thought it was poor breast hygiene.

HIV infection rates were higher amongst cases 49.1%, against 22.9% in controls and statistically significant (p=0.001) with an ODDS ratio of 3.3, 83% (45) of HIV+ cases had their CD4 counts between 201 – 499cells/cmm. Thirteen percent (7) cases had CD4 counts below 200cells/cmm, whilst only 4% (2) had their CD4 counts above 500cells/cmm. Staphylococcus aureas remains the primary infective organism (91.8%) and is responsive to Ciprofloxacin (99%), Erythromycin (97.1%), Chloramphenicol (93.3%) and Cefotaxime (88.2%).

Factors identified associated with breast abscess formation include young age, low parity, living in high-density suburbs, feeding patterns and being HIV+. Cigarette smoking and alcohol drinking were not associated with the disease. Breast-Abscesses may define low CD4 counts as observed though further studies are required to substantiate the finding. Erythromycin is the recommended drug of choice followed by Cefotaxime.

INTRODUCTION

Surgical day cases from male and female admission wards range from minor trauma to less than severe surgical infections that require immediate intervention and subsequent discharge for clinic follow up. These constitute 60% of admissions with major cases ranking third though more involving and time consuming. Ideally the UTH was meant to offer third level specialized services of indisputable standard. However, due to the economic situation of the country and the ever increasing urban population against a stagnant health service, the institution has found itself dealing with minor primary surgery cases at the expense of perfecting specialised surgical procedures.

Developed countries and indeed some developing nations have streamlined such health services so as to channel resources accordingly. Surgical infections which primarily amount to a collection of pus in soft tissue planes require a level of surgical specialisation to manage. This level is fortunately attainable at district level health care. The fact that we have remained behind in developing this level of surgical care has unfortunately overburdened tertiary level care in both, human resource and surgical equipment.

Primary level surgery remains the hallmark in limiting costs in surgical care as much as is emphasised in preventive medicine, this weakness is evidently seen by the type of cases seen at the UTH surgical wards every day at great expense. There is need to explore some of these cases and identify the root cause so that policy may be formulated to prevent the misuse of tertiary care facilities. Surgical infections may thus be arrested much earlier before they complicate to actual abscess formation

Breast infections being specific to a group of people and so common amongst cases attended to are one disease where possible intervention maybe possible.

LITERATURE REVIEW

A breast abscess may be defined as a localized collection of pus in the breast parenchymal tissue, which may or may not involve the lactiferous ducts. This usually complicates an untreated or failed treatment of mastitis[1]. Breast abscesses are known to occur in almost all age groups including neonates[2]. Breast abscesses are divided into two groups, Lactational and non-lactational, of which lactational is more common between the ages 18-50. Usually this follows infection with skin colonizing pathogenic bacteria especially Staph. aureus, and less commonly with Staph epidermidis and streptococci[3, 4]. Infection usually complicates a breech in skin epithelia during breast feeding[3]. In non-lactational cases causative organisms are usually Staph. aureas, enterococci, anaerobic streptococci and the bacteroides spp[3, 4] with infections common in smokers.

Smoking more than 10 cigarettes a day (in non lactating women) has been found to be a major predisposing factor to developing a breast abscess, this has been proved in a number of studies across the world[5]. Periareolar abscesses are a feature of nonlactational mastitis, with 90% of the infections causing subareolar breast abscesses. Periareolar breast abscesses differ in a significant way from lactational infections in that they do not involve a breast lobe and are limited to the local periareolar area. Subareolar abscesses are caused when squamous metaplasia develops in the lining of the lactiferous ducts and the ampullae. The resulting keratinization that occurs with this process leads to the obstruction and dilatation of the breast ducts. The thin lining of the lactiferous ducts ruptures and causes a retrograde flow of bacteria from the skin surface, leading to bacterial invasion that eventually results in inflammation and abscess formation beneath the areola[6, 7]. Other pathologies like Tuberculosis (TB) may underlie this presentation.

In the University Teaching Hospital (UTH) Lusaka, a review of the outpatient daily attendance register showed that over a period of 7 months between June 2005 and December 2005, 1527 cases of abscesses were attended to by incision and drainage as day cases of which 236(15%) were breast abscesses, only two were non lactating. International comparative data is limited in this area and shows some significant variations in the prevalence of breast abscesses during lactation. Most literature report cases of mastitis during lactation, estimated at between 5-33% [8]. However the subsequent complication to an abscess is only seen in 1-3% of European populations, and occurring in the first 3 months of breast feeding[8]. The wide variations in figures at reporting have been attributed to differences in case definitions of mastitis. The diagnosis is usually clinical based on, breast tenderness, signs of local inflammation, and a reduction in milk output [8].

Mastitis in the lactating mother is important to clinicians for two main reasons. Firstly, it is a major cause of reduction in milk production and approximately a quarter of mothers cite

mastitis as their reason for stopping breast feeding[9]. Secondly, by altering the cellular composition of milk and local defenses within the breast itself, mastitis is a powerful risk factor promoting vertical transmission of infections including HIV and the condition may go on to give rise to a local abscess[9]. It was previously recommended that HIV infected mothers should not breast feed at all[10]. However, studies have now shown that breast fed infants of HIV infected mothers in the long run do better than those that are bottle fed, due to the beneficial nutrients/factors in breast milk[11]. Such results amplify the need of a healthy breast during lactation.

Several factors increase the risk of developing of mastitis; these have been grouped into the following[12];

INTRINSIC FACTORS

Midrange maternal age, fatigue, employment outside home, primi parity, previous episode

GENETIC

Human Lymphocyte Antigen (HLA) status, family status

TRAUMA

Skin or nipple damage, hygiene

NUTRITIONAL

Trace elements, Antioxidants

FEEDING ISSUES

Ineffective nursing techniques, Milk stasis- use of bra, feeding technique and frequency, congenital abnormality in the child.

IMMUNE FACTORS

Low milk cell counts

Low milk lactoferrin

Low milk lysozyme

(In summary Child birth, Breast feeding and Cracked Nipples)

Risk factors for Breast abscess are factors that do not seem to be a direct cause of the disease, but seem to be associated in some way. Having a risk factor for Breast abscess makes the chances of getting a condition higher but does not always lead to Breast abscess. Also, the absence of any risk factors or having a protective factor does not necessarily guard against getting Breast abscess[12]

In an Australian cohort that looked at the incidence of breast abscesses in lactating mothers 2124 breastfeeding mothers were recruited over a period of 5years only 3% of the study population developed breast abscesses during the study period though 11% had developed clinical mastitis. For those that went on to develop breast abscesses it is mostly attributed to delayed treatment of the mastitis[13]. Similar findings are reported in Europe and the Middle East [4, 8, 14, 15]. In all studies reviewed associated risk factors were; post partum pelvic infection, fatigue, anaemia, diabetes, use of steroids, state of reduced immunity (not stated as due to HIV), smoking (strongest)' silicone implants.

Most of these cases were managed by needle aspiration[15] in contrast to the University Teaching hospital (UTH) where treatment is by incision and drainage (UTH phase 5 theatre log book). A similar study conducted in Nigeria looked at causes and risk factors associated with the development of breast abscesses, they found only 299 cases of breast abscesses over a 10year period compared with 236 over 7 months in UTH. The risk factors in this study group were low socio-economic status and low levels of hygiene[16]. None of the studies assessed the HIV status of the patients.

Most literature reviewed discusses increased risk of transmission of HIV through concomitant breast disease. Literature on the effect of HIV co-infection in developing breast abscesses specifically is uncommon. However HIV disease and the development of pyogenic skin infections have been well documented. This was also shown locally in a study done in UTH in 1997, which showed that 69% of patients presenting with pyomyositis had HIV co infection[17].

HIV/AIDS has been shown to be common in women of child bearing age. Data from the Zambia Antenatal Clinic sentinel surveillance report 1994-2004, shows that up to 25% of pregnant women in Lusaka attending antenatal clinic were HIV +[18].

Myths on the development, effects and treatment of breast abscesses exist not only in the Zambian setting but in the developed world as well. In the developed world most of these have been dispelled by well-developed perinatal education programmes that have helped women understand the various pathologies encountered during this period[19]. A study in Bangladeshi (a third world country) women has shown that adequate **lactational**

counselling can reduce the prevalence of lactational breast abscesses and its consequences[20]. In Zambia such programmes exist but with lots of problems hence limiting their effectiveness. As such most ante and postnatal mothers are under the guidance of elderly women who counsel them on childcare and upbringing subsequently passing down their understanding of perinatal pathologies.

For example, it is said that once the baby belches onto the breast when feeding that breast will develop an abscess. Some of the health workers involved in primary health education who consequently enforces them believe such myths. Sexual habits of the parents have also been traditionally linked to the development of breast abscesses. It is also believed that one should not be exposed to a lactating breast during intercourse, as he will contaminate the milk hence the abscesses. Change in traditional beliefs is hard to foster in our patients as they are taught of severe repercussions if myth is broken.

From the studies reviewed several factors stand out as contributory risks to the development of breast abscesses either in lactating or non-lactating women. The following are some of the risk factors identified;

1. smoking
2. postpartum pelvic infection
3. anaemia
4. low socio-economic status
5. diabetes
6. use of steroids
7. State of reduced immunity not specified as due to HIV.

Locally some of the listed risk factors do not apply hence the need to identify what is obtaining on the ground

STATEMENT OF THE PROBLEM

Just over 15% of surgical infection cases attended to in phase 5 theatres are breast abscesses, UTH being the only public institution with theatre capabilities in Lusaka bears the unnecessary cost of managing these cases, i.e.

- ❖ From theatre time (an abscess may take 5min to drain, but the total time from anaesthesia induction to waking up runs to over 30mins) taking away valuable time for other more life threatening conditions.
- ❖ To surgical expendables, i.e.

- Sterile gloves
- Sterile gauze and cotton
- Dressing packs
- Limited incision sets

- ❖ Manpower commitment (which is in short supply); such commitment of manpower towards minor cases becomes hazardous in cases of other emergencies coming up during operation time.

Every month the UTH losses a substantial amount of resources in managing this condition which is preventable and treatable without necessarily undergoing theatre.

Therefore there is need to understand the various factors causing such a high number of cases to allow primary prevention and correct specific treatment in order to cut the costs.

OBJECTIVES

GENERAL OBJECTIVE:

TO DETERMINE RISK FACTORS ASSOCIATED WITH THE DEVELOPEMENT OF BREAST ABSCESSES IN FEMALE PATIENTS PRESENTING TO THE UNIVERSITY TEACHING HOSPITAL (UTH).

SPECIFIC OBJECTIVES:

a. To describe the epidemiological pattern of women presenting with Breast abscesses at the UTH

b. To determine socio-demographic factors associated with breast abscesses at UTH

c. To investigate the bacteriological agents and their antimicrobial sensitivity patterns associated with breast abscesses at UTH

d. To determine the association between HIV infection and Breast abscesses at UTH.

HYPOTHESES

Ho: HIV infection and socio-demographic factors do not increase the risk of developing breast abscesses in women.

JUSTIFICATION

1. Bacteriological sensitivity results will enable more specific management of early infections and prevent complications which are more expensive to manage.
2. The socio-demographic and HIV epidemiological data collected will help in the planning of intervention programmes at antenatal level.
3. There is limited published information on such a common condition in sub Saharan Africa

METHODS

STUDY DESIGN

Case controlled study

Study site

UTH female surgical admissions ward and phase 5 theatres

CASE DEFINITION:

A patient presenting to female surgical admission ward in whom a diagnosis of breast abscess is made.

Breast abscess diagnosis: 1. Fluctuant tender breast mass.

2. A positive needle aspiration of pus.

Diagnosis will be made by the Registrar on duty who will also carry out a WHO clinical staging of HIV disease. The nurse on duty oriented to the study will administer the questionnaire.

CONTROL DEFINITION:

These will be consented mothers attending the postnatal clinics in the UTH, and are breast-feeding.

Controls shall be matched for age, education standard and duration of breast-feeding. The same questionnaire as in cases will be administered to the mothers.

INCLUSION CRITERIA:

Diagnosed breast abscess

Consented patient

Lusaka residents.

EXCLUSION CRITERIA:

Non-consented mothers, Diabetic patients

Non-Lusaka residents

SAMPLING AND SAMPLE SIZE CALCULATION

Using EPI-INFO 6 stat calc, with the following assumptions on case presentations to Phase 5;

1. Estimated HIV prevalence of 25% in pregnant women
2. Estimated risk of developing a breast abscess of 3% in non HIV infected women.
3. With a relative risk ratio of 0.12

A generated sample size of 375 was calculated at 95% confidence limit. However, over 7months a total of 236 patients were seen, therefore in my study I estimate to recruit up to 110 patients over 3months serially excluding those that refuse to participate in the study and those that do not meet the inclusion criteria. An equivalent number for controls will be recruited for a one to one match.

STUDY PROTOCOL

Women (110) with breast abscesses will be recruited serially for the study as cases.110-matched controls of breast-feeding mothers will also be recruited. Whilst on the ward a standard study questionnaire see appendix V shall be administered to cases to obtain possible risk factors under the following headings;

1. Socio-demographic data

2. Educational standard

3. Basic knowledge of breast abscess

4. Antenatal/ Prevention of mother to child transmission (PMTCT)/Breast-feeding

   histories

5. Medical history

6. Traditional beliefs

Study assistants (nurses) will be recruited and trained in the conduct of the study. Routine pre operation investigations will be done i.e. full blood count (FBC). Pre op testing and counselling will be done on those who do not know their status but consent to participating in the study. This will be according to the Medical council of Zambia guidelines of 2005. Appropriate advice on further management as regards the results will be offered. HIV positive patients shall be recruited on the CIDRZ ART programme for free monitoring and follow up.

Incision and drainage under general anaesthesia by the call registrar will be done. Intra operatively a pus aspirate shall be obtained.

Patients will have one scheduled study review at 2-weeks post operation. Additional reviews will be as per required need considering wound response; this will be done in their respective units. During this review wound healing time and complications will be noted.

Expected primary outcome:

The study intends to show a high prevalence of HIV infection amongst post natal women with breast abscesses. The study also expects to show that a CD4 count of <200 is a risk factor for development of Breast Abscess in HIV post natal mothers.

Expected Secondary outcome:

The study intends to show that primi gravid status, low socioeconomic status and low education are risk factors for developing Breast abscess with statistical significance of $p<0.05$ with a confidence of greater than 95%.

DATA management and ANALYSIS

1. Data Storage; Data was uplifted from questionnaires on to the EPI Info 6 data base after binary encoding. This was subsequently transferred to SPSS V17 for analysis and final storage in coded form. A data storage disc has been made for raw data.

2. Data accuracy; Single entry format and verification was done due to limited resources of manpower. However entries were counterchecked for errors and cleaned prior to storage

3. Data analysis; Quantitative data was analyzed for frequencies of occurrence of risk factors, exposure and disease association as well as statistical significance set at ($p<0.05$) by cross tabulation in SPSS V17. The ODDS ratio and prevalence for HIV was also calculated. Qualitative data was analyzed for assumptions and generalizations peculiar to the disease pattern. Collected data that was not relevant to the study was not discarded but left in the data bank.

4. Data presentation and data interpretation; Data is presented in 3-D graphs and statistical tables generated from SPSS. Interpretation is by comparative analysis with reviewed similar studies and general cultural norms of what is understood by communities at large.

Specimen analysis will be done at the UTH laboratories

ETHICAL CONSIDERATIONS

CONSENT

Ethics approval was sought in keeping with requirements for research on human subjects as described by the Helsinki declaration, and Ministry of Health.

Informed consent was obtained from all patients who met the inclusion criteria. Consent was obtained after a one on one counseling session by study assistants during which the spectrum of the study was introduced and explained to the patients. Confidentiality on counseling and testing for HIV was maintained by not putting their results on files but communicated to in person. A patient's study facts (information) sheet was read out or handed out to all would be participants prior to recruitment in order for them to make informed consent. The information was translated to appropriate local language verbatim for those that were not clear in English.

Samples collected were given study codes with no names on the specimen bottles to directly link the specimen to the patients. Collection and dissemination of results was done by research assistants only. Patients with further problems for clarification were referred for my attention.

Stigma on participation in the study did not arise as patients were treated in no different way from those who came in with similar surgical conditions.

RESULTS

The study was conducted over a period of seven months which involved the serial recruitment of cases and subsequent selection of matched controls. Controls were identified from antenatal clinics at UTH and Lusaka urban clinics

Data collected was analysed using the SPSS 17.0 Statistical package for frequencies of occurrences and statistical associations of the predicted risk factors.

Epidemiological data was computed to profile the cases so as to generalise on characteristics of women likely to suffer from breast abscesses.

During the study period a total of 110 cases as defined in the protocol were recruited with 110 matched controls. The generated data was analysed for the specified objectives as follows;

EPIDEMIOLOGICAL PATERN OF CASES

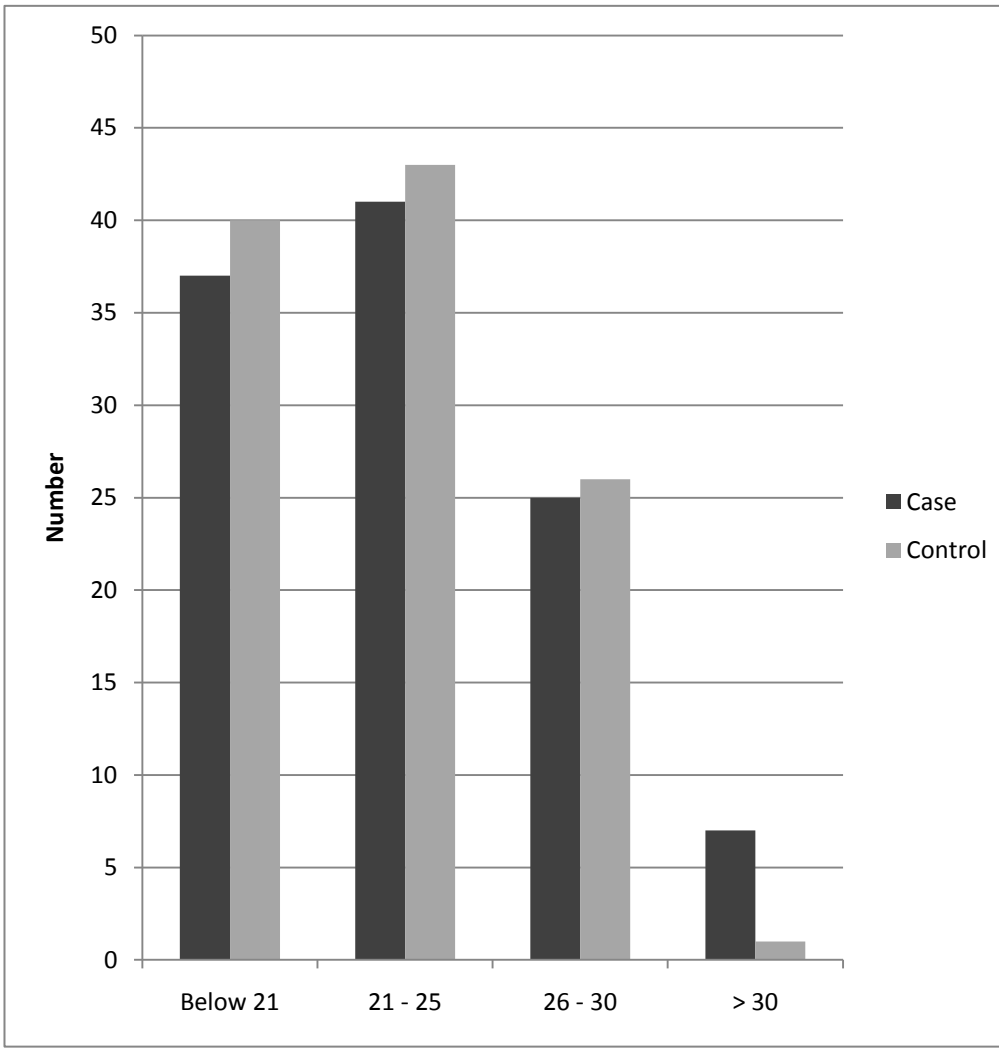
AGE: The age range for the study was from 18years to 36years, with the mean being 27yrs. Most of the cases had an age range between 21yrs – 25yrs representing 37.3% of cases. This was followed by those below 21yrs (33.6%). Thus over 70% of cases were below 25yrs of age, table 1 figure 1

Table 1

FREQUENCY OF CASES/CONTROLS BY AGE

	Case	Control	Total
Below 21	37	40	77
21 - 25	41	43	84
26 - 30	25	26	51
> 30	7	1	8
Total	110	110	220

Figure 1 **AGE DISTRIBUTION**



MARITAL STATUS: Cases were stratified as follows: Married, Single, divorced or Widow. 85.5% of respondents were married table 2 and 3, figure 2. Comparatively 87.7% of controls were also married.

Table 2

		n	Percent
	Married	94	85.5
	Single	15	13.6
	Divorced	1	.9
	Total	110	100.0

Table 3

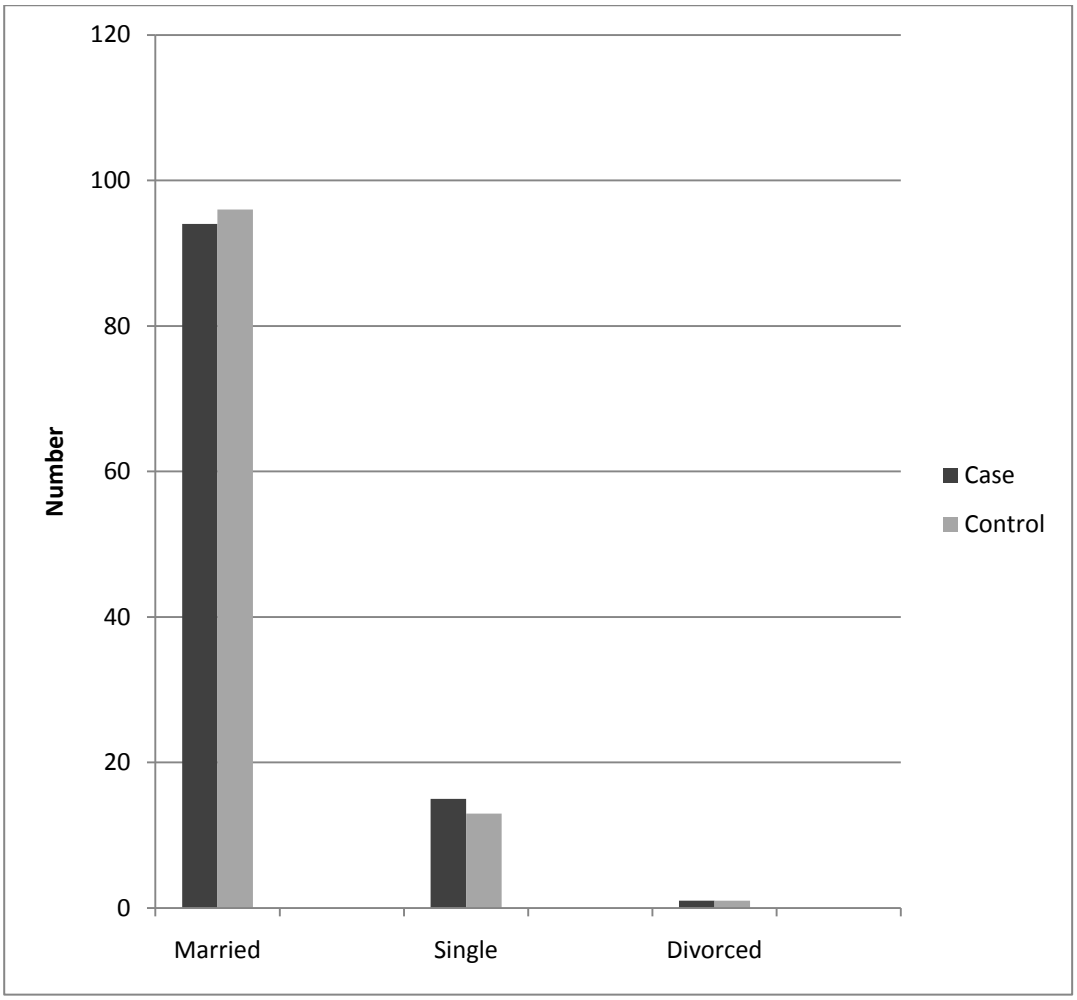
Cross tabulation Marital status

Marital status			Case	Control	Total
	Married	Count	94	96	190
		% within Case	85.5%	87.3%	86.4%
	Single	Count	15	13	28
		% within Case	13.6%	11.8%	12.7%
	Divorced	Count	1	1	2
		% within Case	.9%	.9%	.9%
Total		Count	110	110	220
		% within Case	100.0%	100.0%	100.0%

P=0.921

Figure 2

FREQUENCIES OF CASES BY MARITAL STATUS



PARITY: Respondents were stratified as having 1, 2, 3, 4 or more children. Results showed that most of the respondents had only a single child followed by those with 2 children. Table 4 figure 3 and 4

Table 4

Cross tabulation Parity

Number of Children			Case		
			Case	Control	Total
	1	Count	62	54	116
		% within Case	56.4%	49.1%	52.7%
	2	Count	26	45	71
		% within Case	23.6%	40.9%	32.3%
	3	Count	13	7	20
		% within Case	11.8%	6.4%	9.1%
	4	Count	8	4	12
		% within Case	7.3%	3.6%	5.5%
	6	Count	1	0	1
		% within Case	.9%	.0%	.5%
Total		Count	110	110	220
		% within Case	100.0%	100.0%	100.0%

Figure 3

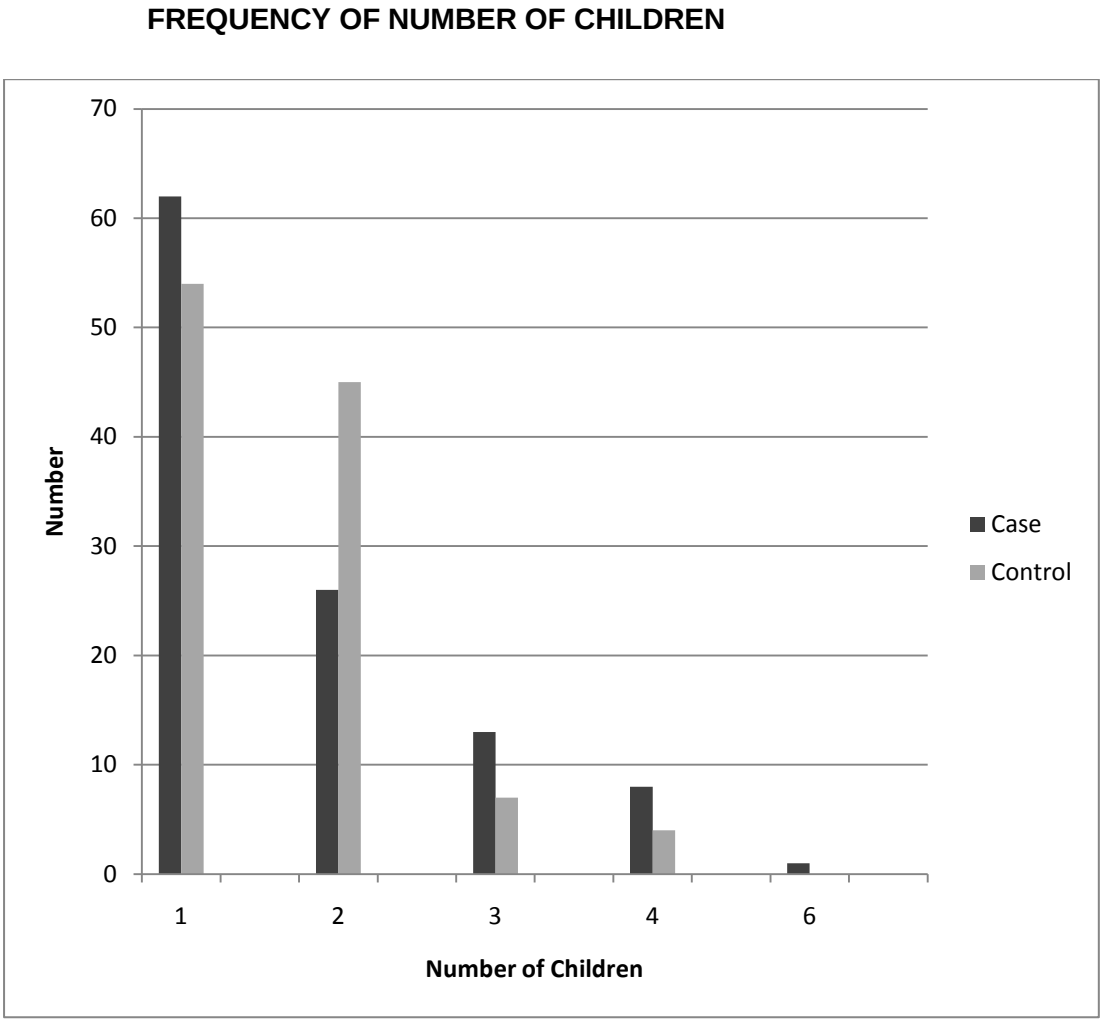
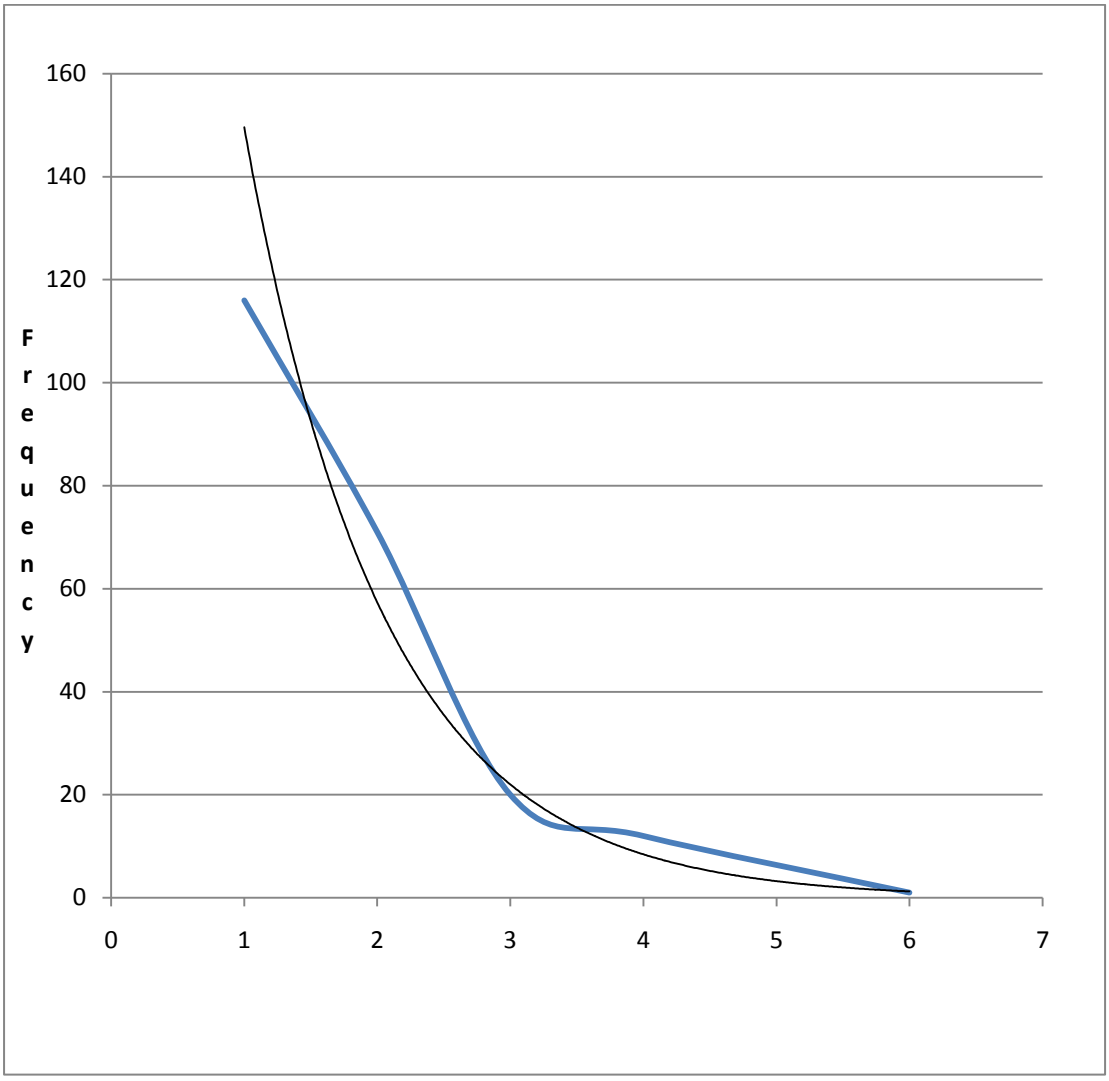

FREQUENCY OF NUMBER OF CHILDREN
70
60
50
40
30
20
10
0
Number
1
2
3
4
6
Number of Children
Case
Control

Figure 4 (Regression plot for number of children per case)

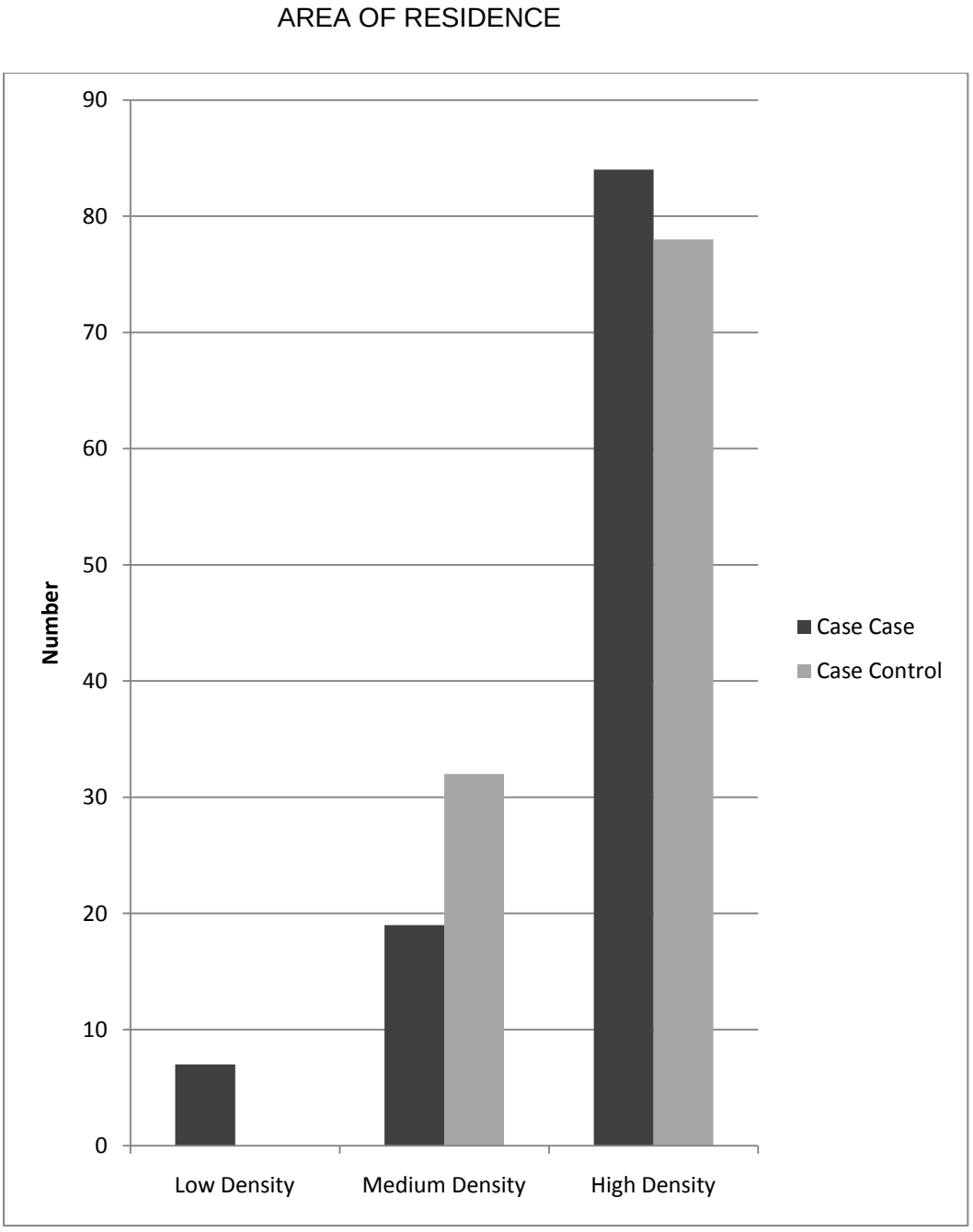
NUMBER OF CHILDREN PER CASE



P=0.05

AREA OF RESIDENCE: Cases were grouped according to where they resided. 76.4% came from high density suburbs whilst only 6.4% came from low density areas. Table 5 figure 5

Figure 5



CROSS TABULATION AREA OF RESIDENCE

Table 5

Area of residence			Case		
			Case	Control	Total
	Low Density	Count	7	0	7
		% within Case	6.4%	.0%	3.2%
	Medium Density	Count	19	32	51
		% within Case	17.3%	29.1%	23.2%
	High Density	Count	84	78	162
		% within Case	76.4%	70.9%	73.6%
Total		Count	110	110	220
		% within Case	100.0%	100.0%	100.0%

P=0.001

SOCIO-DEMOGRAPHIC PROFILE

EDUCATION: This was matched with controls and categorised in two groups; one group as having none to completion of primary education and the other with secondary /tertiary education. Data was also collected for spouses. 47.3% had up to primary level education whilst 52.7% had either secondary or tertiary level education. Table 6 figure 6,

Figure 6

EDUCATION LEVEL

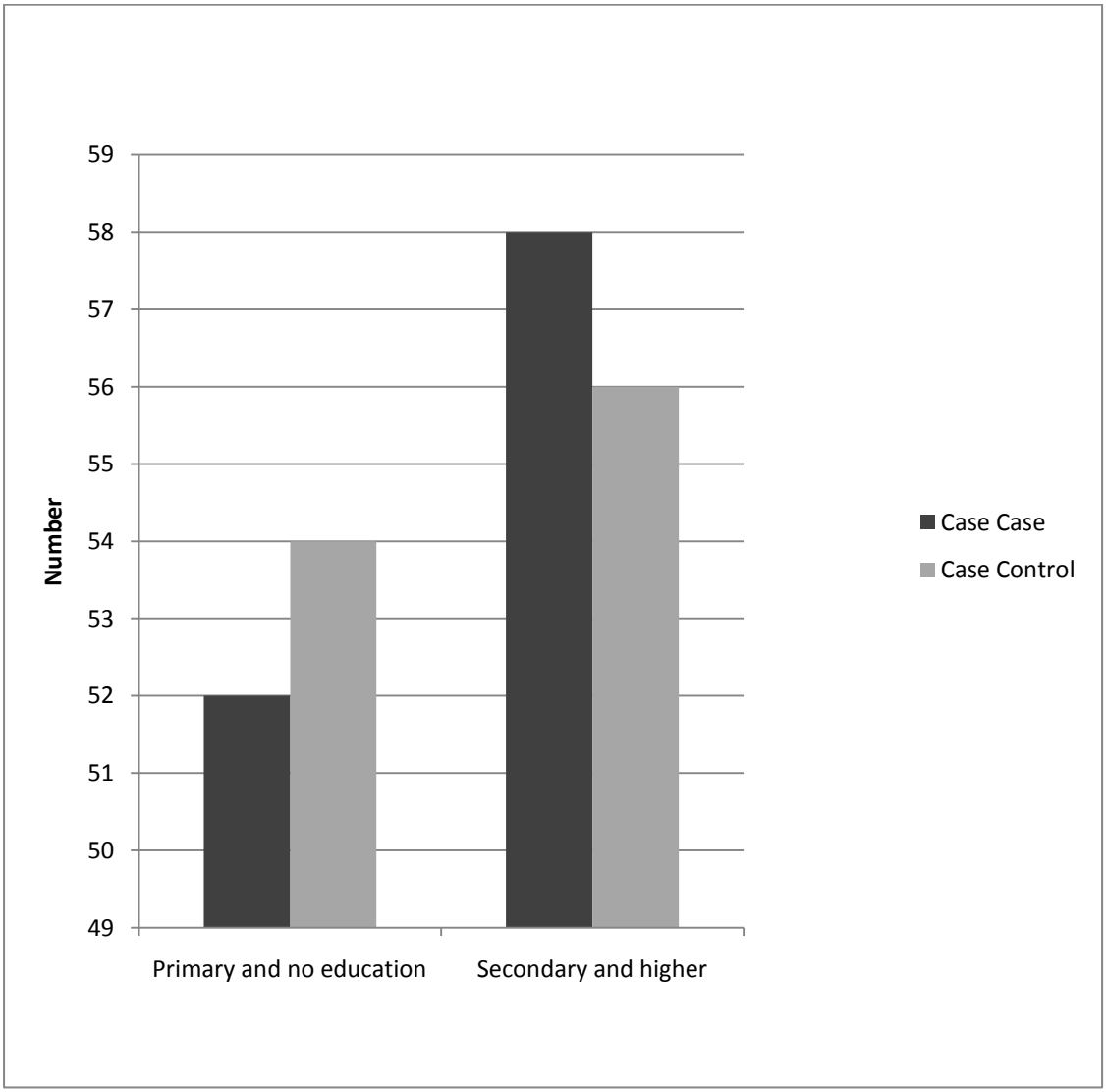


Table 6

EDUCATION * CASE CROSSTABULATION

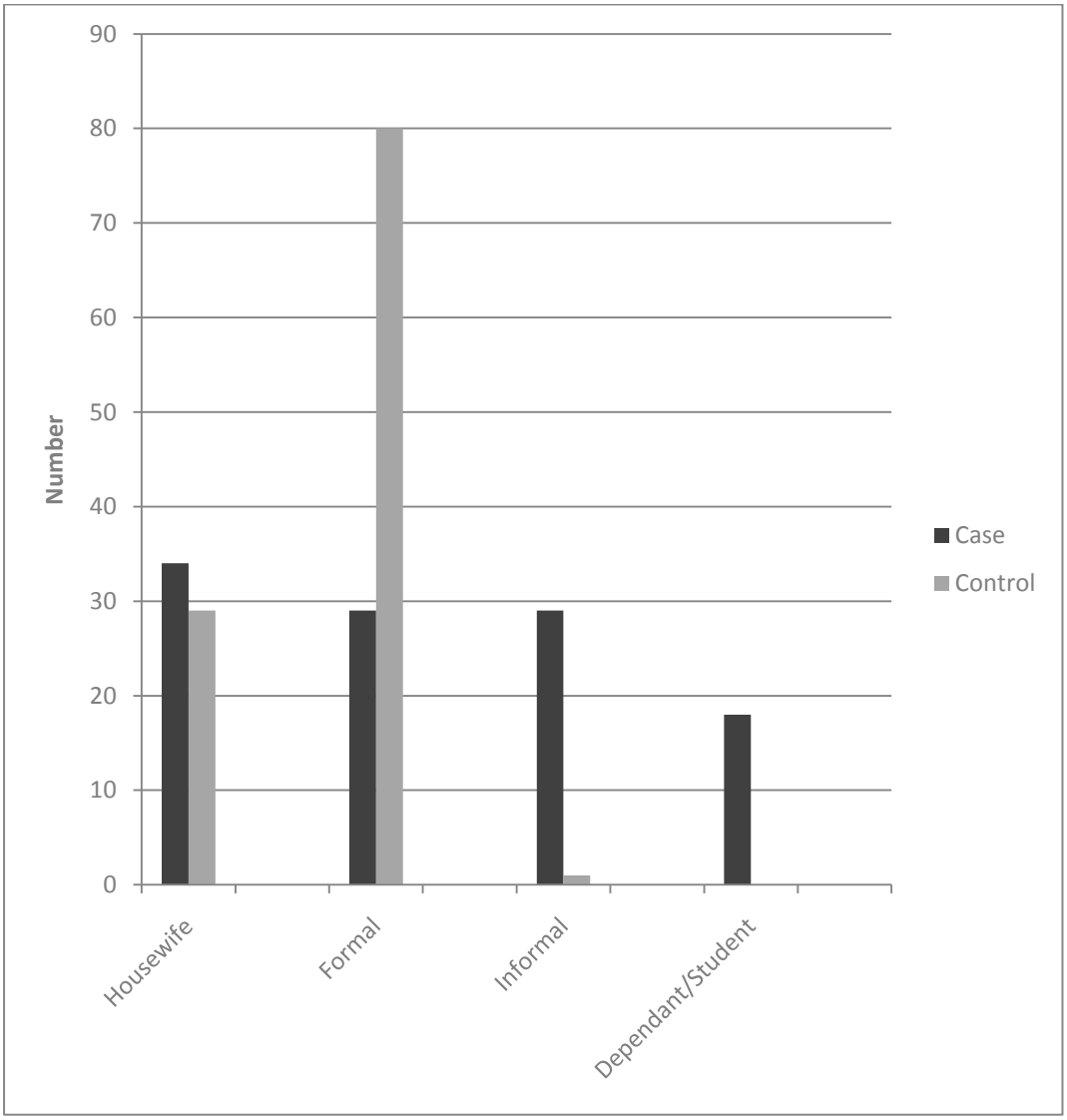
Education			Case		
			Case	Control	Total
	Primary and no education	Count	52	54	106
		% within Case	47.3%	49.1%	48.2%
	Secondary and higher	Count	58	56	114
		% within Case	52.7%	50.9%	51.8%
Total		Count	110	110	220
		% within Case	100.0%	100.0%	100.0%

P=.787

EMPLOYMENT STATUS: Cases were profiled as to whether they were formally employed or not, housewife or dependant. 31% of respondents were housewives with 26.4% being either formally employed or in the informal sector. Amongst controls 72.7% respondents said they were formally employed with only 26.4% being house wives.

Figure 7

FREQUENCY OCCUPATION



OCCUPATION STATUS CROSSTABULATION

Table 7

Occupation			Case	Control	Total
	Housewife	Count	34	29	63
		% within Case	30.9%	26.4%	28.6%
	Formal	Count	29	80	109
		% within Case	26.4%	72.7%	49.5%
	Informal	Count	29	1	30
		% within Case	26.4%	.9%	13.6%
	Dependant/Student	Count	18	0	18
		% within Case	16.4%	.0%	8.2%
Total		Count	110	110	220
		% within Case	100.0%	100.0%	100.0%

P=0.001

BREAST FEEDING PATERNS: 97.3% were breast feeding their children prior to presentation or infection of the breast and of these 79.5% of cases responded to having breast fed their child as per required need (PRN) with the rest having fed their children 2-4 times a day.

Figure 8

FREQUENCY OF BREAST-FEEDING

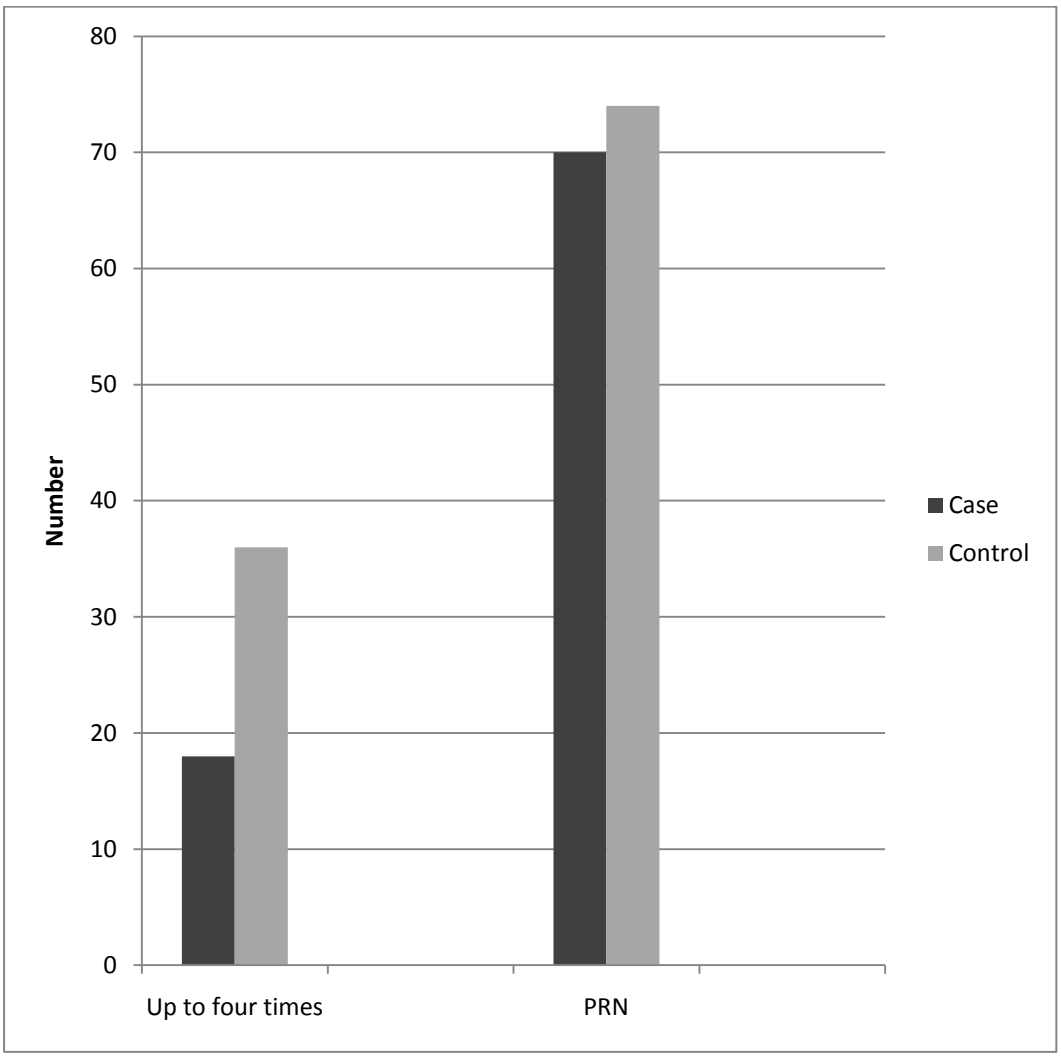


Table 8

CROSSTABULATION BREASTFEEDING PATERNS

			Case	Control	Total
Times Breastfed	Up to four times	Count	18	36	54
		% within Case	20.5%	32.7%	27.3%
	PRN	Count	70	74	144
		% within Case	79.5%	67.3%	72.7%
Total		Count	88	110	198
		% within Case	100.0%	100.0%	100.0%

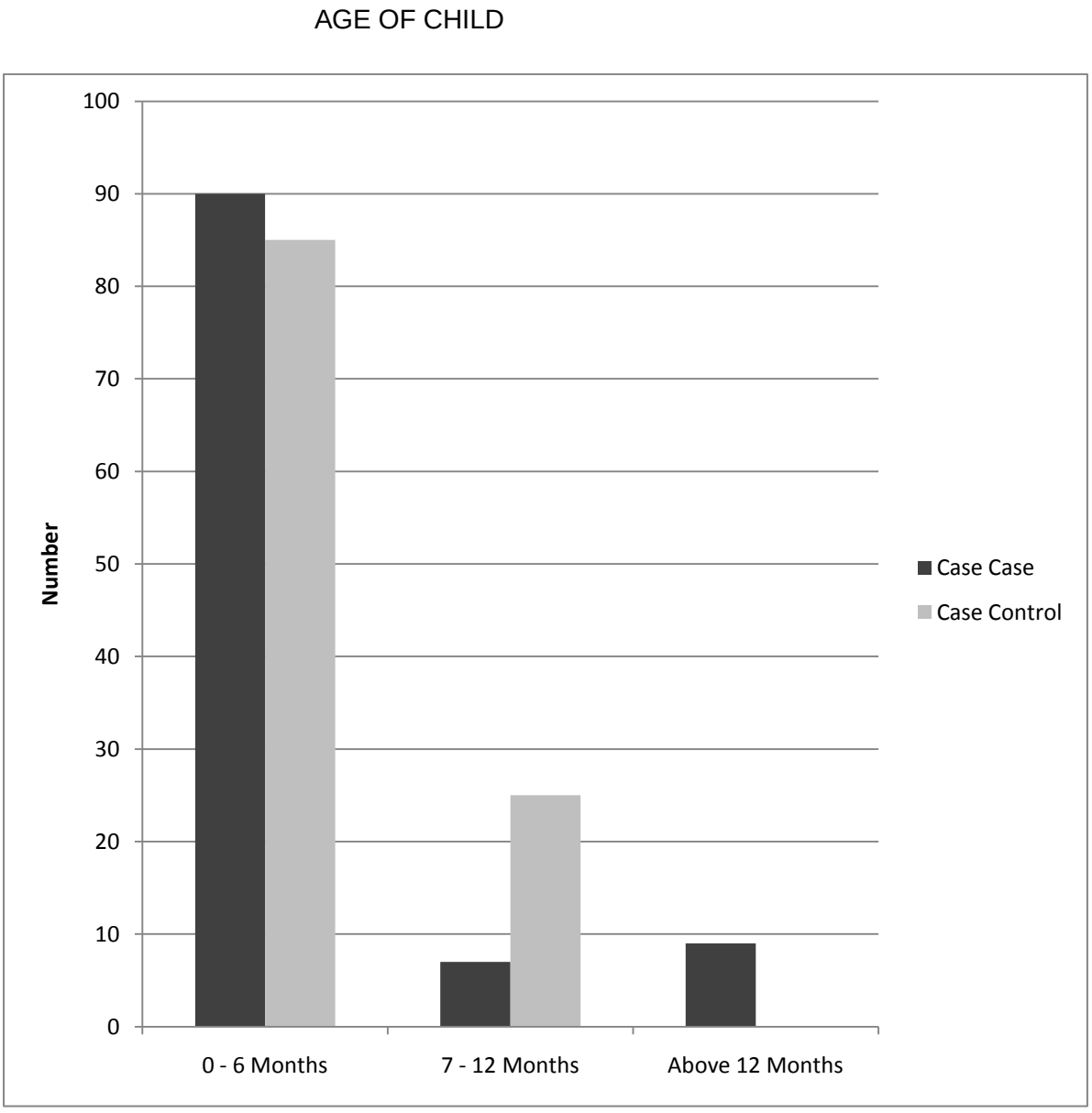
AGE OF CHILD: 81.8% (90) of cases had children between 0-6months at time of presentation, 8.2% (9) had children above 12months and 6.4% (7) had children between 7-12months.

Table 9

AGE OF CHILD CASES

		n	Percent
	0 - 6 Months	90	81.8
	7 - 12 Months	7	6.4
	Above 12 Months	9	8.2
	Total	106	96.4
Missing	System	4	3.6
	Total	110	100.0

Figure 9


AGE OF CHILD
100
90
80
70
60
50
40
30
20
10
0
Number
0 - 6 Months
7 - 12 Months
Above 12 Months
Case Case
Case Control

CIGARRETE SMOKING AND ALCOHOL DRINKING: Amongst cases 3.6% (4) admitted to smoking and 30.0% (33) admitted drinking alcohol whilst breast feeding. Only 2.7% (3) controls responded positively to smoking, whilst 19.1% (21) responded positively to regular intake of alcohol whilst breast feeding.

Figure 10

CIGARETTE SMOKING

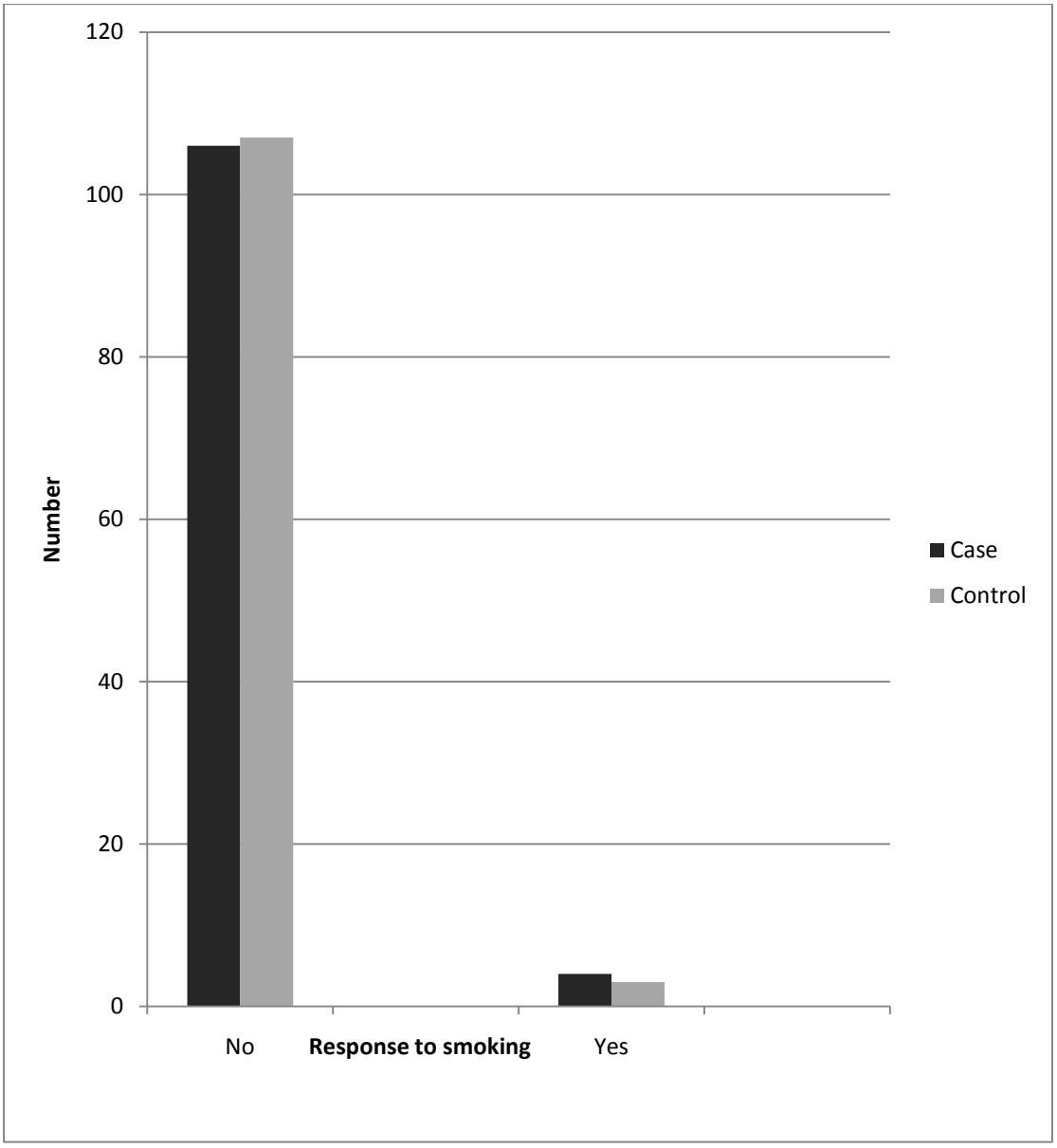


Table 10

Cross tabulation cases smoking

Smoking			Case		
			Case	Control	Total
	No	Count	106	107	213
		% within Case	96.4%	97.3%	96.8%
	Yes	Count	4	3	7
		% within Case	3.6%	2.7%	3.2%
Total		Count	110	110	220
		% within Case	100.0%	100.0%	100.0%

P=0.701

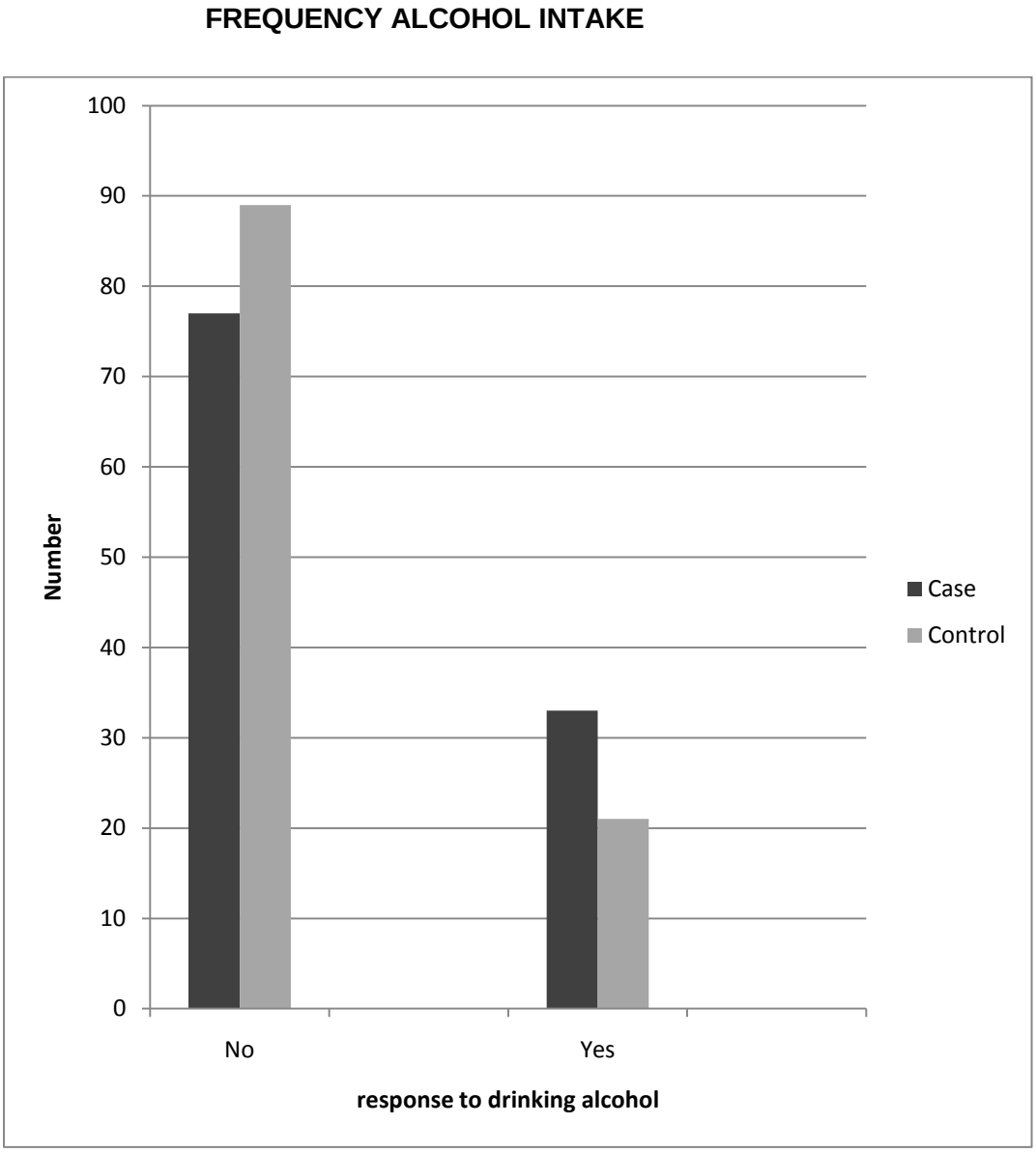
Table 11

Cross tabulation Alcohol drinking habits

Drinks Alcohol			Case		
			Case	Control	Total
	No	Count	77	89	166
		% within Case	70.0%	80.9%	75.5%
	Yes	Count	33	21	54
		% within Case	30.0%	19.1%	24.5%
Total		Count	110	110	220
		% within Case	100.0%	100.0%	100.0%

P=0.060

Figure 11


FREQUENCY ALCOHOL INTAKE
100
90
80
70
60
50
40
30
20
10
0
Number
No
Yes
response to drinking alcohol
Case
Control

USE OF ANTENATAL SERVICES: All respondents said they had attended ANC with 69.1% (76) having a good/normal attendance and 17.3% (19) with 13.6% (15) having more than required visits' due to antenatal problems.

Table 12

USE OF ANTENATAL FACILITY

	n	Percent
Defaulter	19	17.3
Good/Normal	76	69.1
Problematic	15	13.6
Total	110	100.0

COMORBID FACTORS: 35.5% (39) cases responded to having been treated for anaemia during and after delivery, 6.3% (7) had a positive history for Tb, 5.4% (6) gave a positive history of PID treatment. None responded to having a history of Diabetes whilst 8.1% (9) gave a history of trauma to the breast.

BASIC KNOWLEDGE OF DISEASE: 39.1% (43) of the cases did not know what could have caused the disease with 35.5% (39) thinking it was due to child belching on to the breast on feeding. 14.5% thought the disease came from poor breast care and 6.4% ascribed it to trauma. Only 4.5% thought it was due to poor breast feeding habits.

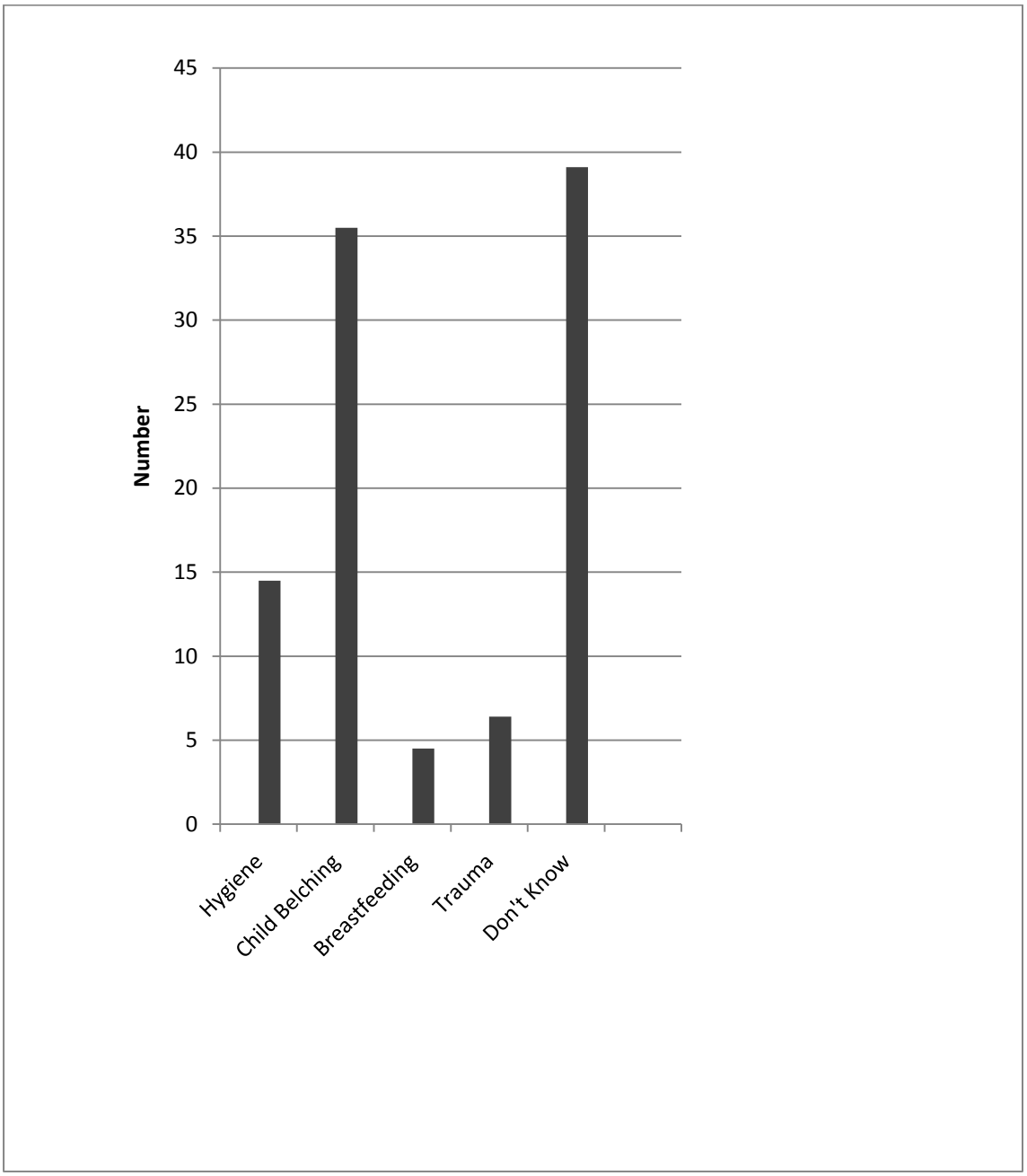
Table 13

KNOWLEDGE ON CAUSE OF DISEASE

	n	Percent
Hygiene (poor)	16	14.5
Child Belching	39	35.5
Breastfeeding	5	4.5
Trauma	7	6.4
Don't Know	43	39.1
Total	110	100.0

Figure 12

KNOWLEDGE OF DISEASE

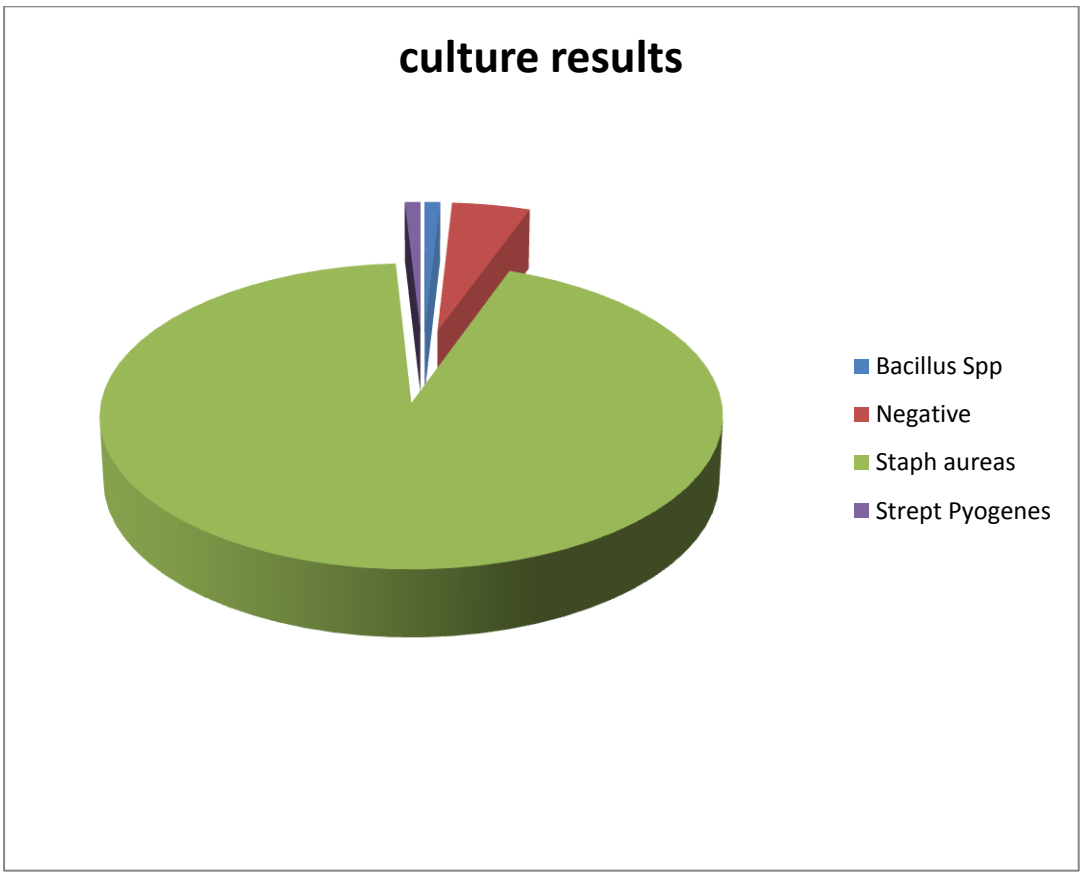


BACTERIOLOGY RESULTS: Specimens inform of pus aspirate from the abscesses was cultured for isolation of organisms and antimicrobial testing for sensitivity of drugs was done. 91.8% of organisms grown were staph Aureas, with 4.5% plates having no growth. One specimen grew Strept Pyogenes and another grew Bacillus spp.

Table 14

		n	Percent
	Bacillus Spp	1	.9
	Negative	5	4.5
	Staph aureas	101	91.8
	Strept Pyogenes	1	.9
	Total	108	98.2
Missing	System	2	1.8
Total		110	100.0

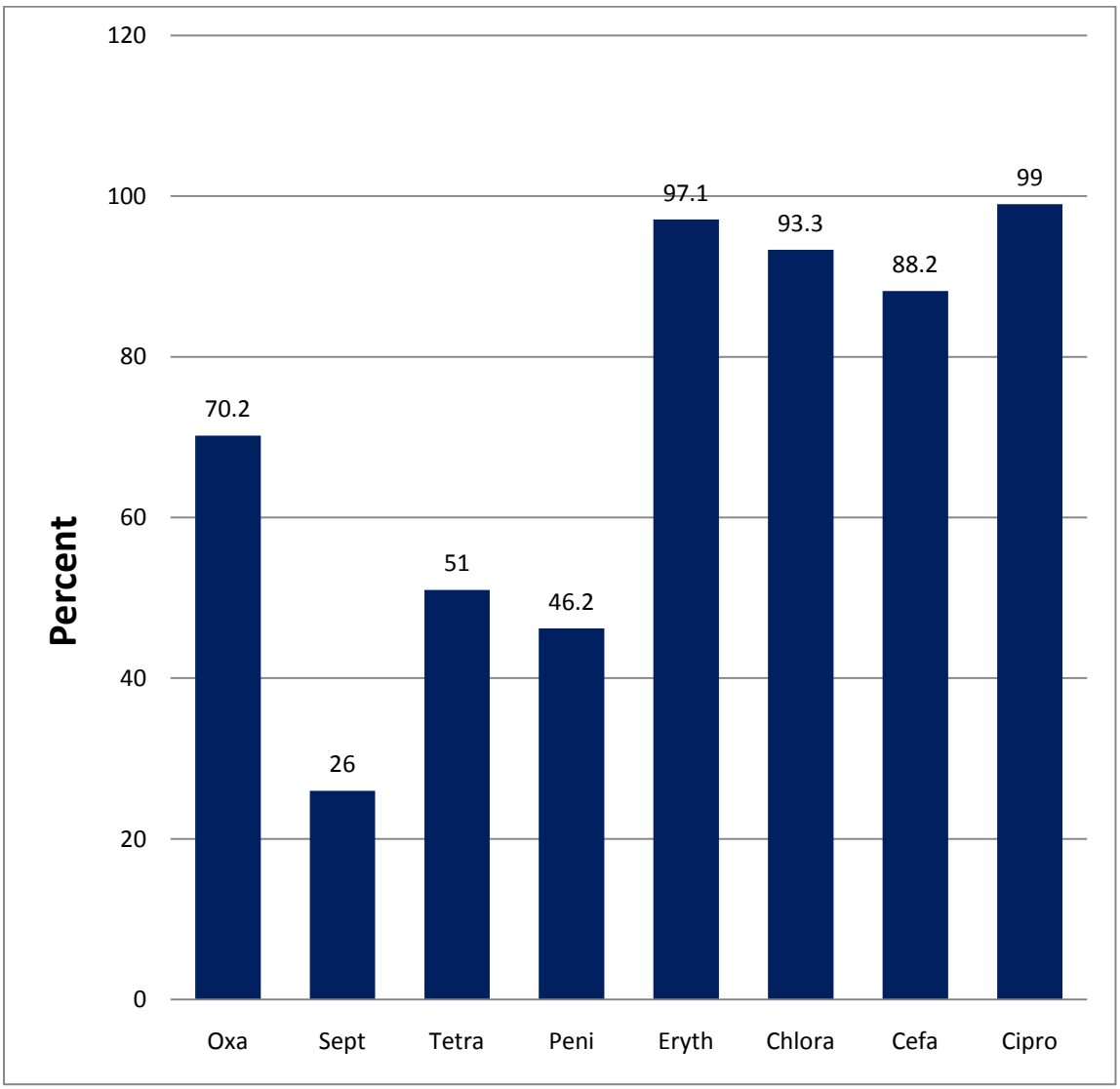
Figure 13



Sensitivity results to the various antibiotics are tabulated below with most organisms sensitive to Ciprofloxacin 99%, Erythromycin 97.1%, Chloramphenicol (93.3%) and Cefotaxime (88.2%).

Figure 14

PERCENTAGE DRUG SENSITIVITY



SEROLOGICAL RESULTS: 49.1% (54) of cases were reactive to HIV infection with 50.9% (56) testing negative. This was compared with controls that had a 22.7% (25) positive rate and 77.3% (85) negative rate, this was further analysed by chi square test for any statistical association. Results showed a p-value of 0.001, thus a true association between HIV infection and the development of breast abscesses.

Table 15

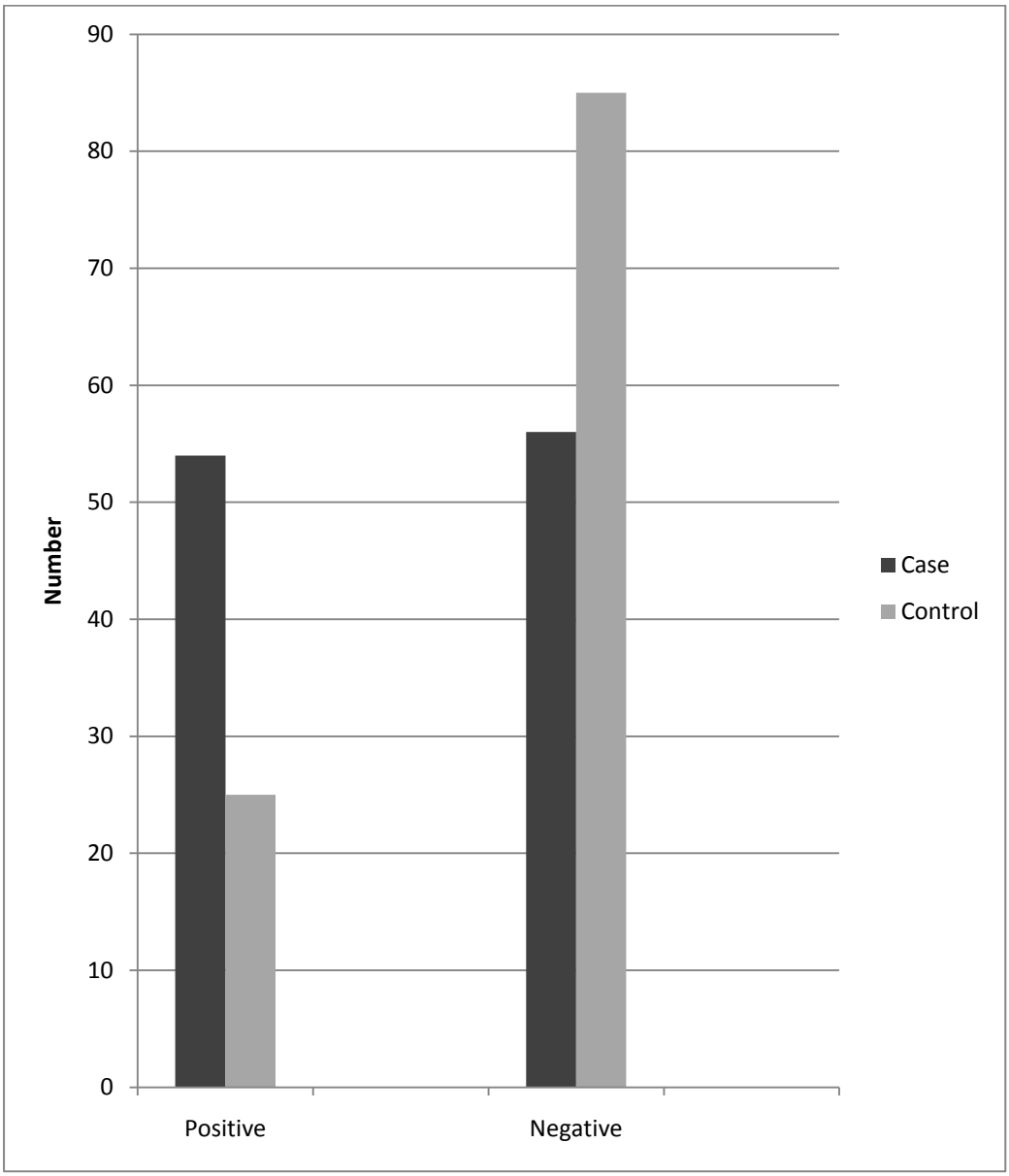
HIV Status * Case Cross tabulation

			Case	Control	Total
	Positive	Count	54	25	79
		% within Case	49.1%	22.7%	35.9%
	Negative	Count	56	85	141
		% within Case	50.9%	77.3%	64.1%
Total		Count	110	110	220
		% within Case	100.0%	100.0%	100.0%

p=0.001

FIGURE 15

FREQUENCIES HIV STATUS CASES AND CONTROLS



The ODDS Ratio for HIV status was also calculated and showed a 3.3 chance of one's likely hood to develop a breast abscess if HIV positive than in the normal population. Table 14,

Table 16

Risk Estimate

	Value	95% Confidence Interval	
		Lower	Upper
Odds Ratio for Case (Case / Control)	3.279	1.832	5.867

CD4 COUNTS; HIV+ cases where also analysed by levels of CD4 at the time of presentation.

Table 17

Cd4 counts	Frequency	Percent
0 - 200	7	13%
201 - 499	45	83%
> 500	2	4%
Total	54	100.0

Post operation wound response at two weeks; 92 (83.6%) returned for the scheduled review, 63 (68.5%) had good wound granulation and used carbolic soap for wound cleaning at home. Those lost to follow up were deemed to have had good wound response not requiring further medical help. 9 (10%) required further wound review at 4weeks post op.

DISCUSSION

Breast infections are in no doubt a common surgical outpatient presenting complaint in lactating women presenting to UTH (15% of Emergency theatre surgical infections treated). International literature shows rates of Mastitis as high as 11% though only 1-3% actually complicates to abscess formation (An Australian cohort). The paucity of literature on breast infections and HIV in Sub-Saharan Africa makes comparatively drawn conclusions or indeed assumptions difficult to make on the subject. However, from the reviewed studies various factors were identified as associated with an increased risk of developing breast infection in lactating women, some of those being ;

8. smoking
9. postpartum pelvic infection
10. anaemia
11. Low socio-economic status (criteria of economic status not defined)
12. diabetes
13. use of steroids
14. State of reduced immunity not specified as due to HIV.

Demographic analysis of results from this study shows that this condition is common in young women age range 18-25(72%), of low parity 1-2 children and in marriage (80%). These ranges are consistently seen in other international studies[8, 16,21,22,23]. However, history of mastitis with a previous child rather than primiparity alone has also been associated with mastitis in some studies[24, 25]. Most of the cases seen were housewives (31%) by occupation with an equal distribution of those in formal and informal employment (26.4%).

Cross tabulation of marriage as a factor did not show any statistical significance though parity was statistically significant by regression p-value of 0.05.

From results, 79.5% of respondents fed their children adlib, a practice encouraged and thought to be preventive in breast engorgement and subsequent milk stasis, a risk factor for development of breast infection[27, 21, 23]. Most studies have shown that mastitis is common in the first three months post partum[8, 21]. The age range of children involved is between 0-6months (82%), a period of exclusive breastfeeding and early development of teeth[8, 23, 27]. Incorrect breastfeeding technique and nipple cracking may play a role at this stage of the infants' life[21], though only 4.5% thought infection was due to poor breastfeeding techniques and 14.5% attributed it to poor breast hygiene.

Despite this high figure, women still went on to develop breast abscesses. This may result from respondents having more breastfeeding contact time thus increasing their chances of trauma to the breast due to breastfeeding [16, 21, 26]. However, rural women spend a lot more time breast-feeding and over a longer period than most of their urban counterparts but with fewer infections. Could this be a case of poor breast-feeding technique by urbanised women or patience in breastfeeding time by the village women so allowing good breast emptying per feed? An observation requiring further study.

The age of respondents may play a role as well (below 25yrs); this being in the younger age group where care of the infant and breast-feeding skills are still being learnt[27,21].

Seventy four percent of respondents came from high-density townships. Cross tabulation with controls showed a p-Value of 0.05 indicating statistical significance. This may border on the general hygiene of the living environment[16] than the economic capacity of the respondents as 26% of respondents were in formal employment, with a further 26% being informally employed. This is also amplified by the fact that breast infections are not as common a condition in rural hospitals as is found in UTH. Villages have fairly cleaner living environments than some of the high-density suburbs in town. Whilst most patients came from high-density areas, the more affluent patients may have not been captured in the study as they could have visited private fee-paying hospitals for treatment.

Employment status; there is a significant statistical association with development of breast infection, p-0.005. This may arise from trauma associated with feeding of a child who has not been breast fed over a long period of time or indeed stress in the mother[13,14,21],. However, this computation also includes housewives who feed their children adlib, though they themselves maybe stressed.

Social habits; European studies have shown throughout the association between smoking and development of breast infection (more than 10 cigarettes a day) [5, 13] however, in this study no statistical association was found p-0.701, a habit which is obviously not common amongst Zambian women. This result is also seen in the question of alcohol drinking p-0.060, despite a slightly higher number of women acknowledging drinking whilst pregnant.

Medical conditions associated with breast infections; Anaemia was the most common condition found in association with development of breast infection (35%), followed by a positive history of Tb and PID though with no significant statistical association. Comparative literature shows conditions like anaemia, Diabetes mellitus, stress, pelvic inflammatory

diseases to be associated[12.19, 27, 23]. The study shows anaemia to be the most associated morbid condition.

Use of antenatal services; this facility was utilised by all respondents and they were classified as defaulters, problematic (requiring more than the prescribed number of visits)

and good attendees. 69.1% had good attendance and is assumed breast hygiene/care was discussed with patients at some point during their antenatal visits. With good antenatal attendance and possibly good lactational counselling[20], patients are thought to be in a better position to understand some of their antenatal pathologies. Unfortunately, the contrary maybe true; i.e. mothers are not adequately taught the significance of breast hygiene during antenatal clinics. This is supported by the increased frequency of cases in women with either (1) 56.4% or (2) 23.6% children who are obviously young and inexperienced in child care[8, 21]. Misconceptions do not seem to play a major role in cases seen, 35% thought the infection was due to child belching whilst 39% did not know what brought about the disease. This is all against a background of all respondents having had some form of education with 50% having above primary level education.

HIV infection; All respondents admitted to having been tested during their antenatal visits, nonetheless, they were still re-tested for confirmation after counselling. If all HIV-infected mothers breastfeed, 10 to 20 percent of their infants will be infected through breastfeeding[28]. This figure goes higher if there is associated breast pathology like mastitis/breast abscess. In resource limited countries exclusive breastfeeding for the first six months in HIV + mothers has been shown to reduce morbidity and improve child survival in the long run as compared with those on formula feed and HIV positive[10, 11, 29]. This is despite the 10-20% risk of transmission[10]. This result amplifies the need to have healthy breasts if mothers are indeed going to breast feed and avoid increasing their chances of vertical transmission of HIV to their children.

A significant association was found between HIV infection and the development of breast abscesses (p=0.001) with an ODDS ratio of 3.3. In the study 22.9% of controls tested positive for HIV infection and 49.1% cases were HIV+. The countries antenatal demographic survey has pregnant women at 25% of HIV infection rates as of 2004. 83% (45) of HIV+ cases had their CD4 counts between 201 – 499cells/cmm, a pre AIDS stage requiring close observation or indeed HAART if other AIDS defining conditions are found.(6.3% had a history of an identified opportunistic infection TB). 13% (7) cases had CD4 counts below 200cells/cmm requiring ART as per Centre for Disease Control/ Zambian guidelines whilst only 4% (2) had their CD4 counts above 500cells/cmm. Studies have shown correlation

between CD4 counts and occurrence of opportunistic infections in progression of HIV infection to disease. Patients with counts less than 400cells/cmm present with various opportunistic infections that include recurrent severe bacterial pyogenic infections like multiple abscesses. Breast abscesses in postnatal women maybe pre AIDS (CD4 201-499) defining and needs further evaluation and possible ART for HIV to prevent increased risk of mother to child transmission of the virus. This is in view of the significant association between HIV infection breast abscesses in cases p=0.001 with an ODDS ratio of 3.3.

Staph aureas was the most isolated causative organism (91.8%), as well seen in other studies[4, 14, 27.]

This was responsive to Ciprofloxacin 99.0%, Erythromycin 97.1% Chloramphenicol 93.3% and Cefotaxime 88.2%.

Post operation wound follow up showed no complications attributable to patients' immune status that in this study is in stage three (3) disease as measured by CD4 counts or presenting symptoms. Most patients cleaned their wounds twice daily with water and ebu soap (a carbolic soap) as advised.

CONCLUSION

Epidemiology of cases;

Breast infections in UTH are common in young married women below the age of 27yrs with two or less children, who are breast feeding infants between 0-6months.

Socio-demographic profile

Patients are young women who hail from high density suburbs engaged in some form of economic activity either informally or formally and have attained an average education. Patients have good utilisation of antenatal facilities though with poor understanding of cause of disease.

Neither Smoking nor drinking alcohol was shown to be statistically associated with the development of breast abscesses in our setting.

HIV association

A significant association was found between HIV infection and the development of breast abscesses (p=0.001) with an ODDS ratio of 3.3. CD4 counts maybe predictive of stage of HIV infection. Prevalence of HIV in breast feeding women with breast infection is at 49.1%

Various factors have been identified as associated with an increased likelihood of one suffering from breast infections. These being;

1. Young age
2. Low parity
3. Living in a high density suburb
4. Being HIV+

Staphylococcus aureas remains the main cause of infection. Definitive treatment with appropriate antibiotics is important to prevent complication into abscess formation. In this study Ciprofloxacin, Erythromycin and Chloramphenicol and Cefotaxime stand out sensitive amongst the various antibiotics tested in that order. Ciprofloxacin would be best recommended but for its importance in Tb treatment. Chloramphenicol is contraindicated for use in breast feeding mothers; the next best alternative is Cefotaxime which is also expensive leaving Erythromycin as a first line drug.

.

STUDY LIMITATIONS

Time; the study proved to be quite encompassing as it progressed requiring more time and variable additions to answer a lot of developing questions.

Published comparative data for peer review on the subject in depth was limited.

Logistics of managing such a study design whilst attending to daily work schedules proved quite challenging, some cases were missed.

Inability to look at other more technical risk factors like; genetics, nutritional factors in milk, immunity factors in milk, due to limited facilities.

RECOMMENDATIONS

Managing day cases like breast abscesses in a tertiary hospital like UTH is an unnecessary cost depriving resources from more serious emergencies. Appropriate intervention at level one health care (Antenatal clinic) would save a lot of resources including manpower time. The following recommendations are put forward;

a. Focused antenatal counselling to young mothers to observe good breastfeeding techniques and habits to prevent breast infections. This will help reduce vertical transmission of HIV especially in our communities (resource limited) where breastfeeding is the most important source of nutrition for the baby.

b. Use of correct first line antibiotics for those with suspected mastitis (Erythromycin).

c. There is need for additional extensive studies on the relationship of CD4 counts and the development of breast abscesses to ascertain the findings in the study.

REFERENCES

1. J.M, Dixon, ABC of Breast infection. BMJ 1994; 309:946-949 (8) October.

2. Rudy J and Nelson L M. Breast abscess during the Neonatal period, a review study, Achives of pedriatrics & Adolescent medicine Vol 129 No 9, 1031 Sept 1975.

3. Maha S. A, Abdel Hadi, Huda A, Bukharie; Breast infection in Non-Lactating women, Journal of Family and Community Medicine, 2005: 12(3)

4. Bakshandeh-Hosrat, Ghazisaidi K, Ghaemi E. O, Fatemi Hasab F, Mohamadi M; Aetiological agents of mastitis in Lactational women in Iran. Middle East Journal of Family Medicine; July 2007, Vol 5, Issue 5

5 Peter Schaffer, Christian Furrer & Bernadette Mermillod. An association of cigarette smoking with recurrent subareolar Breast abscesses. International journal of epidemiology Vol 17 No4 PP.810-813

6. Non lactational mastitis our experience. Annals of Italian Surgery. 2006 Mar- April: 77(2); 127-30

7. F N Lesanka Vergluijs-Osewaarde, R, Roumen, R. J.A Gorris. Sub areolar breast abscess, characteristics and results of surgical treatment. The Breast journal 11(3), 179-182. 2005

8. Allison Vogel, B,L Hutchison, E,A Mitchel Mastitis in the first year post partum BIRTH Vol 26 (4), 218-225.

9. C. Michie, F. Lockie, W. Lynn, The Challenges of Mastitis. Archives of diseases in children 2003;88:818-821

10. Raanda J. Saadeh, Peggy Henderson and Cottan V, Draft paper 5 Infant Feeding and HIV transmission WHO recommendations, April 2005 Durban SA

11. Coovadia H M. et al, Mother to child transmission of HIV-1 infection during exclusive Breast Feeding; the first six months of life. The Lancet 31 mar 2007 Vol 369 issue 9567, P1107-1116

12. Article from the Web site CureResearch_com.htm accessed 7/12/07. Last revised April 9 2003, Titled Risk factors for Breast Abscesses.

13. Amir Lisa H, Foster Della, Mclachlan Helle, Lumly Judith. Incidence of breast abscess in lactating women, a report from an Australian cohort. BJOG; 2004, Vol 111 No 12 PP1378-1381.

14. Dener C, Inan t, et al, Breast Abscess in lactational women. World journal of Surgery 2003 Feb, 27(2):130-3

15. D. Ulitzsch,. Breast Abscess in lactational women, US-guided treatment. Radiology, Sept 1 2004, 232(3):904-909

16 Efem SE. Breast Abscesses in Nigeria. Lactational Vs Non Lactational. J R Coll Surg Edinb. 1995- Feb; 40(1): 25-7.

17. Sikasote Chomba MMED dissertation submission UNZA 1997

18. Zambia Antenatal clinic Sentinel surveillance report 1994-2004

19. Anne M. Montgomery MD. Breast Health in lactating Women. Breast Laleche league, breast-feeding abstracts may 2001, Vol 20, Num 4, pp27-8

20. Flores M, Filtean S, Effect of lactational counseling on sub clinical mastitis among Bangladeshi women. Ann. of Tropical Paeds 2002; 22:85-8.

21. Cibeleli b, Kendra Shwarz, Belsy Foxman. Lactation Mastitis; JAMA, April 2 2003 vol289 N13

22. Evans M, Head J. Mastitis; Incidence, prevalence and cost. Breast-feeding review 1995;3:65-67

23. Kinlay J R,O`Connell D Z,Kinlay S. Risk factors for mastitis in Breastfeeding females, Results of a prospective cohort study. Aust NZJ public Health 2001:25;115-120

24. Foxman B, Dancy H, Gillespie B, Lactation Mastitis; occurance and medical management among 946 breastfeeding women in the US. AMJ Epidemiology 2002; 155:103-114

25. Jonsson S, Pulkkinen M O. Mastitis today,incidence, prevention and treatment, Ann Chiurg gynaecolog 1994:33;84-87

26. Manuela De Allegri, Malabika Sarker, et al . A qualitative into knowledge, beliefs and practices surrounding mastitis in Sub Saharan Africa, what implications for vertical transmission of HIV. BMC Public health 2007,7:22

27. WHO. Mastitis causes and management. Geneva dept of child and adolescent health development 2000

28. Article from the the Linkages project FAQ sheet 1. Updated April 2004, accessed November 2009

29. Marie louise. Review article; WHO 2004 HIV transmission through breastfeeding, a review of available evidence.

Appendix i

DEFINATION OF TERMS

RISK: The probability that an event will occur. It encompasses a variety of measures of the probability of a generally unfavorable outcome.

PARENCHYMA: The essential elements of an organ, used in anatomical nomenclature as a general term to designate the functional elements of an organ, as distinguished from its framework or stroma

PUS: A liquid, usually yellowish (to green) that is formed in certain infections and is composed of white blood cells, bacteria and cellular debris.

MASTITIS: Inflammation of the mammary gland or breast

LACTATION: The period of the secretion of milk

PATHOGENIC: Capable of causing disease

PERI-AREOLAR: Around the dark skin of the nipple

SUB-AREOLAR: Beneath the dark skin around the nipple

METAPLASIA: The change in the type of adult cells in a tissue to a form which is not

formal for that tissue

LACTIFEROUS: Bearing or containing milk or a milky fluid

AMPULLAE: Saccular anatomical swelling or pouch

KERATINIZATION: Keratin formation or development of a horny layer.

INFLAMMATION: A localized protective response elicited by injury or destruction of tissues, which serves to destroy, dilute or wall off (sequester) both the injurious agent and the injured tissue.

TENDERNESS: Painful sensation to touch or palpation

INTRINSIC: Situated entirely within or pertaining exclusively to a part.

TRAUMA: Injury

HIV: Human Immunodeficiency Virus

PYOGENIC: capable of forming pus

PYOMYOSITIS: Pus deep seated in muscle layer

PERINATAL: A period around pregnancy from about 28 weeks of pregnancy to about 1 month after birth.

POSTPARTUM: Period after giving birth

MYTH: Traditional or legendary story, usually concerning some event, with or without a determinable basis of fact or a natural explanation, esp. one that is concerned with deities or demigods and explains some practice, rite, or phenomenon of nature.

ADLIB: feeding child per required need

C/cmm: cells per cubic millimeter

UTH: The University Teaching Hospital

ABSCESS: Localized collection of pus in body tissues.

HIGH DENSITY SUBURB: residential area of high concentration of people per unit measure

ART: Anti retroviral therapy

HAART: Highly Active Anti-retroviral therapy.

AIDS: Acquired immune deficiency syndrome

Appendix ii

CONSENT TO PARTICIPATE IN RESEARCH

(Patient information sheet)

A. TITLE

A STUDY TO DETERMINE RISK FACTORS ASSOCIATED WITH PRESENTATION OF BREAST ABSCESSES IN FEMALE PATIENTS PRESENTING TO THE UTH

B. PURPOSE

1. To collect information about the possible causes of your disease.

2. To collect information about your understanding of the possible causes of your disease.

Breast abscesses are a very common condition in breast feeding women presenting to UTH for treatment. This is a condition where there is an accumulation of pus in the breast due to either untreated or poorly treated breast infection. We usually see at least one mother a day with this condition after spending several days at home trying to treat the breast infection. Interviewed affected mothers give a lot of reasons as to why and how they developed the breast abscesses. Unfortunately some of the reasons given have no basis at all and actually put you at further risk of developing breast abscesses and their complications thus denying your child breast milk and putting you at unnecessary risk of severe bacterial infection. It is for this reason that we have decided to find out what women know, understand and believe about causes and treatment of breast abscesses. This is a condition which women need not suffer from given necessary information about breast care during breast-feeding. Your participation in this study will be by answering an already written questionnaire of simple questions read to you by the nurse on duty. Further participation will be by samples collected in theatre whilst you are asleep of the material drained from your abscess. This material will be examined in the laboratory to determine what bacteria exactly caused the infection and what type of reaction is going on in your breast. You will then be asked to return for follow up of your wound after a month of treatment to asses healing.

C. PROCEDURES:

If you choose to participate in this study, no further procedure other than that of treating your disease will be performed on you.

D. RISKS AND DISCOMFORTS:

The will be no direct risk or discomfort to you other than that directly related to the treatment of your condition in theatre as signed on your theatre consent form.

E. CARE, BENEFITS AND ALTERNATIVES:

Your participation in the study will expose you to beneficial information, which will help you deal with any future risks of developing this disease and you will be in a position to advise fellow women at risk correctly. You are free to withdraw from the study at any time for any reason; the action will not in any way disadvantage you from seeking medical attention at this institution.

I …….

Have read/been read to the context of the study and fully understand the risks and advantages of participating in the study described above.

Signed this day.....

Witness this day.....

If you have any questions not properly answered by the nurse attending to you and you need clarification please call me Dr Bernard Kapatamoyo on 097743914 or ask the Nurse to get in touch with me on your behalf.

Appendix iii

CONSENT TO PARTICIPATE IN THE BREAST ABSCESS STUDY

I have been asked to participate in the above research and give my consent freely and willingly by signing this form after reading the patient information sheet:

I understand that:

1. If I do not volunteer, or decide to withdraw from the study, my decision will be accepted and this will not influence the continuing management of my condition.

2. I have read (or) understood the information that has been read to me in my local language and have had all my questions answered to my satisfaction.

3. I am further aware that information I divulge will be treated in a confidential manner and I will not be personally identified.

_____ _____

Signature or thumb print of patient Signature of Investigator

_____ _____

Date Place

N.B.: In case of any questions, please contact Dr. Bernard Kapatamoyo Department of Surgery, University Teaching Hospital (UTH), Lusaka. Tel 097-7-423914, Email: benkapatamoyo@yahoo.com or UNZA Biomedical Research Ethics Committee Tel; +260-1-256067, Fax +260-1-250753 or E-mail: unzarec@zamtel.zm

Appendix iv

POST OP PATIENT AND WOUND FOLLOW UP FORM

REF NO……..

REVIEW NO (1)……

(2)……

DAYS POST OP……

1. Number of times wound cleaned per day.
2. Cleaning material used
    a. Ebu Soap
    b. Salt water
    c. Other specify
3. Wound appearance
    a. Slough
    b. Granulating
    c. Edges closing
4. Are you receiving appropriate attention for the illness?
    a. Yes
    b. No
5. Who cleans the wound for you?
    a. Self
    b. relatives
    c. clinic

Appendix V

RISK FACTOR QUESTIONAIRE ON THE DEVELOPMENT OF BREAST ABSCESS IN FEMALE PATIENTS PRESENTING TO FEMALE SURGICAL ADMISSION WARD UTH

1. SOCIO-DEMOGRAPHIC DATA

a. Age ( )

b. Marital status **M**arried ( ) **S**ingle ( ) **W**idow ( ) **D**ivorced ( )

c. Address……

d. Number of children ( )

e. Level of education

i. Wife: **P**rimary ( ), **S**econdary ( ), **T**ertiary ( )

ii. Husband: **P**rimary ( ), **S**econdary ( ), **T**ertiary ( )

f. Occupation: Formal ( ), Informal ( )

g. Socio habits

i. Drink alcohol **Y** ( ), **N** ( )

ii. Smoking **Y** ( ), **N** ( )

2. **LACTATING**

Y ( )

N ( ) (If No go to Q3)

a. If yes, How many times do you Breast Feed ( )

b. Age current child

1. 0-6m ( )

2. 6m-1yr ( ),

3. Above 1yr ( )

3. BASIC KNOWLEDGE OF DISEASE

a. What do you think caused the disease

i. Poor breast hygiene ( )

ii. Child belching ( )

iii. Sexual contamination ( )

iv. Breast ulceration due to Breast Feeding ( )

v. Breast congestion ( )

vi. Trauma to breast ( )

vii. Don't know ( )

b. Did you continue Breast feeding on the affected breast ( )

c. Have you had such a problem before **Y** ( ), **N** ( ) If yes,

How did you deal with it

i. Traditional ( )

ii. Clinic/hospital ( )

4. ANTENATAL HISTORY

a. Did you attend Antenatal Clinic(ANC) **Y** ( ), **N** ( )

b. How many times ( )

c. Distance to clinic; Bus ( ), Walking ( )

d. Did you discuss breast care during your visits **Y** (**), N** ( )

e. Have you been through the Prevention of mother to child transmission Programme (PMTCT) Y **( ), N** ( )

5. PAST MEDICAL HISTORY

a. Tuberculosis(TB) ( )

b. Diabetes Mellitus ( )

c. History of trauma to the breast ( )

d. Pelvic Inflammatory Disease post partum ( )

Appendix VI

WHO CLINICAL STAGING OF HIV DISEASE IN ADULTS AND ADOLESCENTS

CLINICAL STAGE 1

Asymptomatic

Persistent generalized lymphadenopathy

CLINICAL STAGE 2

Unexplained moderate weight loss (under 10% of presumed or measured body weight)

Recurrent upper respiratory tract infections (sinusitis, tonsillitis, otitis media, pharyngitis)

Herpes zoster

Angular cheilitis

Recurrent oral ulceration

Papular pruritic eruptions

Seborrhoeic dermatitis

Fungal nail infection

CLINICAL STAGE 3

Unexplained severe weight loss (over 10% of presumed or measured body weight) Unexplained chronic diarrhoea for longer than one month

Unexplained persistent fever (intermittent or constant for longer than one month)

Persistent oral candidiasis

Oral hairy leukoplakia

Pulmonary tuberculosis (current)

Severe bacterial infections (e.g. pneumonia, empyema, pyomyositis, bone or joint infection,

meningitis, bacteraemia, severe pelvic inflamatory disease)

Acute necrotizing ulcerative stomatitis, gingivitis or periodontitis

Unexplained anaemia (below 8 g/dl *)*, neutropenia (below 0.5 x 109/l) and/or chronic

thrombocytopenia (below 50 x 109 /l)

CLINICAL STAGE 4

HIV wasting syndrome

Pneumocystis pneumonia

Recurrent bacterial pneumonia

Chronic herpes simplex infection (orolabial, genital or anorectal of more than one month's duration or visceral at any site)

Oesophageal candidiasis (or candidiasis of trachea, bronchi or lungs)

Extrapulmonary tuberculosis

Kaposi sarcoma

Cytomegalovirus infection (retinitis or infection of other organs)

Central nervous system toxoplasmosis

HIV encephalopathy

Extrapulmonary cryptococcosis including meningitis

Disseminated non-tuberculous mycobacteria infection

Progressive multifocal leukoencephalopathy

Chronic cryptosporidiosis

Chronic isosporiasis

Disseminated mycosis (coccidiomycosis or histoplasmosis)

Recurrent septicaemia (including non-typhoidal *Salmonella*)

Lymphoma (cerebral or B cell non-Hodgkin)

Invasive cervical carcinoma

Atypical disseminated leishmaniasis

Symptomatic HIV-associated nephropathy or HIV-associated cardiomyopathy

a Unexplained refers to where the condition is not explained by other conditions.

b Assessment of body weight among pregnant woman needs to consider the expected weight gain of pregnancy.

c Some additional specific conditions can also be included in regional classifications, such as the reactivation American trypanosomiasis (meningoencephalitis and/or myocarditis) in the WHO Region of the Americas and

penicilliosis in Asia.

Source: *Revised WHO clinical staging and immunological classification of HIV and case definition of HIV for surveillance.*

Appendix IX

CDC Classification System for HIV-Infected Adults and Adolescents

CD4 Cell Categories	Clinical Categories		
	A Asymptomatic, Acute HIV, or PGL	**B Symptomatic Conditions,#* not A or C**	**C AIDS-Indicator Conditions***
(1) ≥500 cells/µL	A1	B1	C1
(2) 200-499 cells/µL	A2	B2	C2
(3) <200 cells/µL	A3	B3	C3

Key to abbreviations: CDC = U.S. Centers for Disease Control and Prevention; PGL = persistent generalized lymphadenopathy.

CDC Classification System: Category B Symptomatic Conditions

Table 2. CDC Classification System: Category B Symptomatic Conditions

Category B symptomatic conditions are defined as symptomatic conditions occurring in an HIV-infected adolescent or adult that meet at least 1 of the following criteria:
a) They are attributed to HIV infection or indicate a defect in cell-mediated immunity.
b) They are considered to have a clinical course or management that is complicated by HIV infection.

Examples include, but are not limited to, the following:

- Bacillary angiomatosis
- Oropharyngeal candidiasis (thrush)
- Vulvovaginal candidiasis, persistent or resistant
- Pelvic inflammatory disease (PID)
- Cervical dysplasia (moderate or severe)/cervical carcinoma in situ
- Hairy leukoplakia, oral
- Idiopathic thrombocytopenic purpura

- Constitutional symptoms, such as fever (>38.5°C) or diarrhea lasting >1 month
- Peripheral neuropathy
- Herpes zoster (shingles), involving ≥2 episodes or ≥1 dermatome

CDC Classification System: Category C AIDS-Indicator Conditions

Table 3. CDC Classification System: Category C AIDS-Indicator Conditions

- Bacterial pneumonia, recurrent (≥2 episodes in 12 months)
- Candidiasis of the bronchi, trachea, or lungs
- Candidiasis, esophageal
- Cervical carcinoma, invasive, confirmed by biopsy
- Coccidioidomycosis, disseminated or extrapulmonary
- Cryptococcosis, extrapulmonary
- Cryptosporidiosis, chronic intestinal (>1-month duration)
- Cytomegalovirus disease (other than liver, spleen, or nodes)
- Encephalopathy, HIV-related
- Herpes simplex: chronic ulcers (>1-month duration), or bronchitis, pneumonitis, or esophagitis
- Histoplasmosis, disseminated or extrapulmonary
- Isosporiasis, chronic intestinal (>1-month duration)
- Kaposi sarcoma
- Lymphoma, Burkitt, immunoblastic, or primary central nervous system
- *Mycobacterium avium* complex (MAC) or *M kansasii*, disseminated or extrapulmonary
- *Mycobacterium tuberculosis*, pulmonary or extrapulmonary
- *Mycobacterium*, other species or unidentified species, disseminated or extrapulmonary
- *Pneumocystis jiroveci* (formerly *carinii*) pneumonia (PCP)
- Progressive multifocal leukoencephalopathy (PML)
- *Salmonella* septicemia, recurrent (nontyphoid)
- Toxoplasmosis of brain
- Wasting syndrome due to HIV (involuntary weight loss >10% of baseline body weight) associated with either chronic diarrhea (≥2 loose stools per day ≥1 month) or chronic weakness and documented fever ≥1 month