Original Article

Hypertesion and Low Birth Weight Babies in Females Sterilized with Quinacrine in Faisalabad from 1995 to 2005.

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ABSTRACT

Objective:

To find out hypertension and low birth weight babies in 6 to 17 years follow up after quinacrine sterilization (QS) during 1995-2005 in Faisalabad.

Study design

The Cross sectional study

Place and duration of the study

The females who had transcervical insertion of quinacrine during 1995 to 2005 in Faisalabad were included in the survey. The duration of the survey was from January 2012 to April 2013.

Subjects and Methods

The sample size calculated at 95% confidence level was 540. Sampling technique was simple random sampling. The home based survey of quinacrine sterilization was done by Lady health visitors and structured pretested questionnaires were filled. The examination and referral was done at the Manzar Medical Centre Faisalabad.

Results

The frequency distribution and calculation of statistics showed the mean age at quinacrine sterilization was 38.5 years, standard deviation 6.517, standard error=0.461. The demographic features showed that the most of the females were living in rural areas (67%), poor (51.85%), unemployed (89.7%) and Iliterate (65%). In the study, low birth weight babies were in 9(1.66%) and hypertension was in113 (20.9%) women after quinacrine sterilization.

Conclusion

The hypertension and low birth weight babies were reported in females after quinacrine sterilization. Thus these findings may have a bearing on permanent sterilization practices and design of future investigations.

KEY WORDS: quinacrine sterilization, premature births, birth defects, still births.

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INTRODUCTION:

Quinacrine sterilization was introduced in Chile by Zipper and his colleagues[1].They tested various agents on experimental animal and also evaluated the effects of intrauterine administration of quinacrine in females[1].

In 1970s quinacrine was used for female sterilization in more than 35 countries all over the globe. Quinacrine was being used for many years to produce fibrosis in pleural and peritoneal cavities.[2] This method was accepted by communities as a permanent method of contraception. Meanwhile, few subjects of quinacrine sterilization were reported with problems like hypertension, ectopic pregnancy, amenorrhoea, cancers, fetal malformations, and low birth weight babies[3]. A concern was raised about side effects of quinacrine sterilization.[4] The research studies showed no significant

evidence of increased risk of reproductive tract cancers for quinacrine sterilization method[5].

In Pakistan, quinacrine sterilization was introduced in Faisalabad, Pakistan, by the late Professor Altaf Bashir in1990 at the Gulzar Colony MCH Centre of the Mother & Child Welfare Association[6]. During 1990, efforts were made to educate the females about family planning methods including the introduction of quinacrine sterilization in Faisalabad. A survey in January 1991 of 1005 married women showed contraceptive prevalence at 41.7% including 18.1% using permanent female sterilization[7].

It was observed in surveys that multiparity, low socioeconomic status and early marriages were significantly associated with increased maternal mortality. The family planning methods and especially sterilization methods could reduce maternal morbidity and mortality. The female sterilization methods succeeded in bringing maternal mortality in Faisalabad significantly below the national average[7]. Quinacrine sterilization was carried out in camps and cases were referred to MCH clinics, primarily by traditional birth attendants. No deaths, cancers and birth defects were reported in the large experience of 11000 cases of quinacrine female sterilization. However, the premature births and low birth weights were found. Thus Faisalabad had gained the largest single insertion experience with quinacrine sterilization[7].

The research study produced by Agha Khan University Pakistan revealed that one in three middle aged adults had evidence of hypertension and one in four of heart disease in the urban community of Karachi. Further, the results showed that women have equivalent risks of heart disease to men when matched for age. This was the highest prevalence of chronic illnesses reported from Pakistan and showed the greatest burden of morbidity and mortality due to hypertension and its complications in women[8].

The cases of genetic mutations, low birth weight and hypertension were described in quinacrine sterilized females but they were not statistical significant.Thus this study was conducted to describe hypertension and low birth weight babies after transcervical insertion of quinacrine for female sterilization in Faisalabad in 6 to 17 years follow up after quinacrine insertion from 1995-2005.

MATERIALS AND METHODS

The cross sectional study was conducted in Faisalabad. Those females who had transcervical insertion of quinacrine during 1995 to 2005 were included in the survey. The records of quinacrine sterilized females were obtained from five Mother and Child health centres. They were as follows:

Mother and Child Welfare Association Gulzar Colony Faisalabad.

Mother and Child health Centre Partab Nagar Faisalabad.

Mother and Child health Centre Chak Jhumra Faisalabad

Mother and Child health Centre Factory Area Faisalabad

Manzar Medical Centre Faisalabad.

The sample size was calculated by Epi-info 2000. The quinacrine sterilized female population was 11000 during 1995 to 2005. The expected frequency of sterilization failure rate in quinacrine sterilization was 6.3%[18]. The worst acceptable result was 8.4%. The sample size was calculated at 95% confidence level was 540. Sampling technique was simple random sampling using random number table. The ethical issues were addressed and all information was kept confidential. The informed consent was taken from all the participants. Any female who refused to give consent was excluded from the study.

The home based survey of quinacrine sterilization was done by Lady health visitors. The quinacrine sterilized females fulfilling the inclusion and exclusion criteria were motivated for follow up visit and examination in the Manzar Medical Centre Faisalabad. The data was collected through pretested and structured proforma. The hypertension was defined as having mean blood pressure more than 140/100 on three consecutive measurements taken on two occasions 6 hours apart,[1] then taking mean of all readings or the female has normal blood pressure on examination and she is on antihypertensive treatment. The low birth weight was defined as weight less than 2.5 kg at birth.

The data analysis was performed on epi-info2000. The frequency, percentage, mean and standard deviations were calculated for quantitative variables. The stratification of data

according to age and duration of quinacrine sterilization was done to control confounders.

Results

The total females who were followed after quinacrine sterilization were 540 after 6 years to 17 years of Quinacrine sterilization. The frequency distribution and calculation of statistics showed that the mean age at quinacrine sterilization was 38.5 years, standard deviation was 6.517, standard error was 0.461. The demographic features showed that the most of the females were living in rural areas (67%), poor (51.85%), unemployed (89.7%) and Iliterate (65%). (Table 1)

In the study low birth weight 9(1.66%), and hypertension 113 (20.9%) were found in women sterilized with quinacrine. (Table 2)

Table1. Demographic features of female quinacrine sterilization.

Variable	frequency	percentage
Age at quinacrine sterilization		
35 years or less	106	19.6%
More than 35yrs	434	80.3%
Residence		
Rural	362	67%
Urban	178	33%
Employment		
Employed	59	10.93%
Unemployed	481	89.07%
Poverty		
Yes	280	51.85%
No	260	48.15%
Literacy		
Literate	189	35.1%
Illiterate	351	64.9%

Table2. Frequency distribution and percentages of study variables

Variable	frequency	percentage
Duration of Quinacrine sterilization		
1. 10 yrs or less	463	85.74%
2. more than 10 yrs	77	14.25%
Pregnancy		
Yes	58	10.74%
No	482	89.26%
Low birth weight		
Yes	9	1.66%
No	531	98.34%
Hypertension		
Yes	113	20.9%
No	427	79.1%

DISCUSSION:

In Pakistan, quinacrine sterilization was introduced in Faisalabad and gained the largest single insertion experience with quinacrine sterilization due to its acceptance in the community[9]. However, the long term follow up and further studies were needed to provide evidence for its safe use and efficacy.

In this study mean age at quinacrine sterilization was 38.5 years, standard deviation 6.517, standard error 0.461. Suhadia and Sokal had described quinacrine sterilization in females having mean age 33.2 years, standard deviation 9.75 and mean age 36.4 years, standard deviation 6.61 respectively[10,11].

Thus the females were younger in age than the females included in present study.

In this study after quinacrine sterilization various side effects were noted in females like hypertension in 113(20.9%) and low birth weight in 9(1.66%). The similar side effects were reported in another research and concern was raised about side effects of quinacrine sterilization in follow up studies[12]

The age standardized prevalence in ethnic subgroups showed that Punjabi 18% females and 17.3% males, Balochi 41.4% females and 25.3% males, in Muhajir 24.6% females and 24.1% males, in Pashtun 28.4% females and 23.7% males, Sindhi 9.9% females and 19% males were hypertensive[13]. In this study 20.9% prevalence of hypertension was reported in quinacrine sterilized females in Punjab and that was higher than 18% in Punjabi females.

In present study the low birth weight babies were found in 1.6% women. In another study it was reported that the mean birth weight of the newborns was 2.91 kg. Weight of 78% babies ranged from 2.5 to 4 kg, 19% had low birth weight and 3% of neonates weighed above 4 kg. Of 1156 low birth weight babies 70% were preterm, 16% were growth retarded and 14% were both premature and growth retarded[14]. The reasons found for low birth weight babies in present study were birth before 40 weeks of gestation, multiparity (para>5), and advanced maternal age (age>35 yrs).Similar findings were found in other research. The birth weight data were essential for monitoring the progress towards decreasing infant diseases and mortalities.

In another study out of the 4500 babies born in Agha Khan secondary hospitals, 429 were Low Birth Weight and 191 were admitted to the nursery. The ratio of males to females was 0.86:1.0 (199 males and 230 females). Approximately 41% of the babies were less than 2 kgs and Preterm babies were 20.9 % of total low birth weight. Out of the 191 babies, 99 (51.8%) had hyperbilirubinemia ; 16(8.3%) had respiratory distress syndrome of the newborn; 16(8.3%) had vomiting; 21(10.9%) had sepsis; 12 (6.2%) had hypocalcemia; 11(5.7%) had hypoglycemia 08 (4.1%) had Meconium Aspiration Syndrome; 05 (2.4%) had thrombocytopenia; and 02(1.04%) had hyperviscosity with hematocrit of more than 65%. Common causes of morbidity in LBW babies are jaundice, sepsis, Respiratory distress, hypoglycemia and hypothermia[15]

Similar results were reported in a meta-analysis of 80 studies that documented the outcome of low birth weight infants. In the study 27% infants were ≤ 2500g, 44% infants were ≤1500g, and 29% were ≤1000g. The outcome worsened with lower birth weights and was found statistically significant[16]. Advances in medicine and technology had enhanced the ability to care for babies at very early gestations. There had been a shift toward earlier gestational ages. These changes had added to the burden of premature births. The rate of morbidities in the premature births was increased several-fold when they were compared to infants delivered at 39 weeks. Pakistan was included in countries with greatest number of low birth weight babies. Thus low birth weight described in the study should not be neglected.

In Pakistan, quinacrine female sterilization was performed on a large scale in the community. Thus the follow up visits of the quinacrine sterilized females should be encouraged and information regarding long term side effects should be available to the community. Further studies and investigations should be designed to compare the permanent sterilization methods for better contraception and family health.

CONCLUSIONS:

The hypertension and low birth weight babies were found in quinacrine sterilized women. Thus these findings may have a bearing on permanent sterilization practices and design of future investigations. The follow up visits of quinacrine sterilized females should be encouraged in the community to combat harmful effects of quinacrine sterilization.

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