

ROUTINE DIAGNOSTIC ANTENATAL ULTRASOUND SCAN: KNOWLEDGE AND PERCEPTION OF PREGNANT WOMEN.

Jagun O. E, Ogunlaja O O., Odusoga O L,

Dept of Obstetrics and Gynaecology Olabisi Onabanjo University Teaching hospital Sagamu.

ABSTRACT

Objective: The aim of this study is to determine the knowledge and perception of pregnant women about antenatal ultrasound scan (USS). It is also to determine factors that influence why women seek to do USS in pregnancy and the reasons for choosing a facility for the service.

Method: Questionnaires were administered to consecutive samples of patients who came in for antenatal ultrasound scan at our centre by nurses who have been previously trained for the purpose. The scan was then done by a trained sonographer. Data collected were analysed using SPSS version 11. Routine antenatal ultrasound scan involves fetal age determination, fetal wellbeing assessment, fetal weight estimation and sex determination where possible

Results: The response rate was 97.5%. Majority of the patients (76.3%) attended higher school and above and 3.7% had no education at all. Two hundred and twenty nine (65.5%) of the patients were sure of their last menstrual period.

All the patients were aware of the need for ultrasound scan in pregnancy and 70.4% has had USS done in pregnancies before. Almost all the patients 94.6% believed that USS is necessary in pregnancy. Ninety (25.6%) believed that USS should be done at least 3 times in pregnancy and 110 (31.3%) believed it should be done as often as possible. Eighty six point nine per cent (86.9%) are of the opinion that USS has no harmful effect on the baby. Few of the patients (3.1%) believed that USS should not be done in early pregnancy while majority 85.7% feels it could be done at any time. Majority of the patients came to assess fetal well being. Cost was not a consideration in the choice of where to do the scan.

Conclusion: Ultrasound scan is a veritable tool in the management of the pregnant woman. Majority of our patients are aware of ultrasound scan service and many of them have actually used the service before. This should make compliance to doctors' request for ultrasound scan easy and patients should derive the full benefit of Ultrasound scan especially in pregnancy.

INTRODUCTION

Indications for the use of ultrasound scan in obstetrics have increased over the years and it has been considered routine to have ultrasound scan (USS) done for many reasons in pregnancy. Even without prescription, patients go for a scan and derive a psychological feeling of wellbeing

after the USS has shown the baby to be fine. This unrestricted use may breed misuse of ultrasound

Corresponding Author: Dr. Jagun O. E,
Department of Obstetrics and gynaecology,
Olabisi Onabanjo University Teaching
Hospital Sagamu

scan in pregnancy. Misuse of ultrasound in pregnancy is said to include sex screening, selective abortion of a normal fetus in patients who want to select the sex of their baby, producing non-medical photos or videos for commercial purposes and non-indicated overuse by health-care professionals for their own financial benefits¹.

The popularity of Ultrasound scan in obstetrics is intense. The technology which is now available and affordable in most developing countries is mainly used for diagnostic purposes. The tendency to overuse the technology is however very real. In special situations where the fetus is high risk, the number of ultrasound scan done may be more than the usual since the benefits outweigh the risks. The average number of USS in pregnancy has been put at about 3 to 4 and maybe more if there are any special reasons or less (between 1 and 3) for low risk patients.² Some women may also request for ultrasound scan at every antenatal clinic visit. The competence for screening and interventional ultrasonography in cases of fetal anomaly detection and therapy is not readily available yet in most developing countries

The safety of USS in pregnancy is generally not in doubt but it has been advocated that since radiation is being emitted anytime an ultrasound scan is done, the principle of As Low As Reasonably Achievable exposure (ALARA) should be adopted for ultrasound scan request because of the potential for tissue heating³ and the probability of the occurrence of a negative effect of radiation exposure which increases with cumulative life time doses. Although USS has been reported to be largely safe in pregnancy, some attention is beginning to be drawn to some of its possible side effects and

safety issues in early antenatal ultrasound like growth restriction, delayed speech, dyslexia, and non-right-handedness associated with ultrasound exposure^{3,4}

The number of USS done in pregnancy can therefore be said not to be limitless. Communication with mothers and appropriate information about the benefits and limitations of ultrasound are essential to alleviate fears, and to discourage irrational expectations and demands for ultrasound scan on sonographers by mothers⁵.

The aim of this study is to determine the knowledge and perception of pregnant women attending our facility (Olabisi Onabanjo University Teaching Hospital Sagamu) about ultrasound scan done in pregnancy especially in relation to its safety profile in pregnancy. It is also to determine factors that determine why pregnant women seek to do antenatal ultrasound scan and the reasons for using a facility for the service.

MATERIALS AND METHODS

The study was conducted at Olabisi Onabanjo University Teaching Hospital Sagamu Ultrasound clinic. Ultrasound Scan is conducted for all body systems and organs in the unit. The scan machine is a 2-Dimension schimatzu machine, 350XL model which has facility for fetal weight estimation amongst others. For the purpose of this study, the scan is conducted by only one sonographer who has more than ten years experience in ultrasound scanning. Routine scan involves determination of fetal number, fetal lie, fetal presentation, fetal age estimation, fetal well being assessment, fetal weight estimation and sex determination where possible. The questionnaire was pre-tested amongst patients attending antenatal care in our

antenatal clinic.

An average of thirty people are scanned in a day and obstetric scan constitutes about 75% of the scans. Ultrasound scan is done from Monday to Saturday. The study was conducted within a month using consecutive samples of pregnant women. The questionnaires were administered by nurses who had been trained on how to administer the questionnaires including translation of the questions into the native languages when the need arises. The questionnaires were administered before the patient sees the sonographer.

RESULTS

A total of 360 questionnaires were administered. Twelve people declined participating in the study based on ill health, fatigue and language barrier. A total of 348 (97.5%) questionnaires were considered valid for analysis.

The age distribution of the patients cut across all age groups (table 1). Majority of the patients (76.3%) attended high school and above and only 3.7% had no education at all. Two hundred and twenty nine (65.5%) of the women were sure of their last menstrual period.

Almost all the patients 94.6% believed that antenatal ultrasound (USS) is necessary in pregnancy and 70.4% has had USS done in pregnancies before. Table 2 shows the perception of the patients on how often a scan should be done in pregnancy while table 3 shows the reason why the women came for the ultrasound scan. On their perception about the safety of USS in pregnancy, 86.9% are of the opinion that USS has no harmful effect on the baby and 1.7% believed that it may have some harmful effect. Few of the patients (3.1%) believed that USS should not be done in early

pregnancy while 85.7% feels it could be done at any time. Eleven point four percents (11.4%) are undecided. Cost was not a consideration in the choice of which facility to choose as most (62.4%) visited the unit because the scan was adjudged good. Twenty five point nine percent (25.9%) attended because they were specifically directed there for the scan by the referring doctor. Table 4 shows patients' referral pattern for ultrasound scan

DISCUSSIONS

The introduction of USS into diagnostic medicine has revolutionised the practice of medicine more especially the field of obstetrics. The benefits of diagnostic ultrasound in a resource-poor setting are well known and undisputed¹. Though said to be safe, it may not be totally safe in pregnancy as attention is beginning to be drawn to some of its side effects. The opinions of participants in this study are generally skewed towards one direction that ultrasound scan is a safe procedure in pregnancy, despite the heterogeneous mix of their socio-demographic characteristics. This might be as a consequence of their relatively high literacy level.

Ultrasound scan has a role in the different trimesters or stages of pregnancy; there is no consensus as to how many exposures should be done in pregnancy. While some advocate for an average of 2 in low risk, some others advocate for average of 4 in high risk pregnancies while others could not place a bar on the maximum number of exposures in pregnancy². The fear of the thermal effect of the radiation on the brain and the developing organs of the fetus, more especially in the early stages of pregnancy, is the predominant fear in the call for restraints in the number of exposures in pregnancy. A

Vietnamese study shows some antenatal clinic patients having an average of 6.6 scans in an average of 8.3 antenatal clinic visits⁶. In this study most of the women were of the opinion that USS should be done as often as possible. This is also in consonance with the Syrian⁸⁷ experience. This impression could have been sown by some ultrasonographers for financial benefits or a reflection of the limitation of the sonographer's knowledge on the safety profile of ultrasound^{3,5,7,8}. There is a need for continued evaluation of the potential biological effects of ultrasound and their relationship to clinical practice⁹.

The most common indication for requests for USS in pregnancy globally is for fetal well being^{45,76}. This has a psychological effect on the mothers and it enhances compliance to antenatal instructions and subsequent performance in labour when told that their babies are doing well. However the parameters that constitute fetal well being are not standardized and are therefore not reproducible. Some of the mothers also came for scanning on self referrals and some without being informed of the reasons for the procedure.

Despite the fact that sex determination is not a recognized indication for USS, it still constitutes a significant reason why women go for USS and ability of the sonographer to tell them the sex may be a criterion for their assessment of how good a sonographer is and therefore the basis of their patronage. On the other hand the widespread referrals could be as a result of the ultrasonographer's skills at meeting the expectation of the referring units.

There is a need to assess the knowledge of the sonographers on safety of the ultrasound scan and what they consider as fetal well being. Communication with mothers and appropriate

information about the benefits and limitations of ultrasound are also essential to alleviate fears, and to discourage irrational expectations and demands for ultrasound scan on doctors and sonographers by mothers^{5,10}.

CONCLUSION

The ultrasound scan is a veritable tool in the management of the pregnant woman and there is a need for continued evaluation of its safety profile. The most common reasons why women do USS in pregnancy is because they want an assurance of their fetal well being, to confirm and date the pregnancy and to know the presentation. There are however several other non-medical reasons that may border on the misuse of ultrasound scan in pregnancy. Most of the women in our series believe that USS is safe and should be done as many times as possible which negates the principle of ALARA. The safety of USS is further reduced with the use of Doppler and contrast USS in the first trimester and with prolonged scanning time during an exposure. The patients, doctors and sonographers need to be properly counseled on the indications for USS in pregnancy to reduce spurious USS request and ethical considerations should always guide clinical practice.

ACKNOWLEDGMENT

I wish to acknowledge the veritable assistance of Dr Kola Onamusi (the medical director of Ore-Ofe Oluwa clinics) and other doctors who allowed us to administer the questionnaires on their patients and to all the members of staff for their cooperation most especially the nurses trained to administer the questionnaires. I wish to acknowledge Mrs Adekanmbi for the secretarial work.

TABLES

Table 1: Sociodemographic Characteristics Of The Clients

AGE GROUP	NUMBER (351)	FREQUENCY (%)
≤19 yrs	18	5.1
20 – 24	75	21.4
25 – 29	133	37.9
30 – 34	81	23.1
≥35	44	12.5
PARITY		
0	117	33.3
1	87	24.8
2	73	20.8
3	31	8.8
4	29	8.3
≥5	14	4.0
EDUCATIONAL LEVEL		
Non	13	3.7
Arabic	4	1.1
Primary	66	18.8
Secondary	211	60.1
Post Secondary	57	16.2
LAST MENSTRUAL PERIOD		
Known	229	65.2
Not Known	83	23.7
NOT SURE	39	11.1

Table 2: How Many Times Should Scan Be Done In Pregnancy?

	NUMBER	FREQUENCY (%)
Once	35	10.0
Twice	81	23.1
Three Times	90	25.6
Four Times	28	8.0
As Often As Possible	110	31.3
Don't Know	7	2.0
TOTAL	351	100%

Table 3: Reasons for Coming For Scan

	NUMBER	FREQUENCY (%)
Fetal Well Being	139	39.6
No Of Babies	14	4.0
Presentation	49	14.0
Confirmation Of Pregnancy	75	21.4
Placentation	9	2.6
To Know The Sex/ Gender	38	10.8
No Reasons	12	3.4
Others	08	2.3
Gestational Age	07	2.0
TOTAL	351	100

Table 4: Referring Centres

	NUMBER	FREQUENCY (%)
PRIVATE HOSPITAL	86	24.5
GOVERNMENT HOSPITAL	43	12.3
MATERNITY HOME	91	25.9
TBA	55	15.7
SELF	76	21.7
TOTAL	351	100

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