Assessment of Applying Clinical Audit for Pregnant Woman with Iron Deficiency Anemia.

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Abstract

Background: clinical audit is a complementary part of the standards it includes a checklist and action plan. The checklist can be used to test or audit standards. The action plan is a conclusive part of the audit. Iron deficiency anemia during pregnancy is one of the most significant health problems in the world. Impact of iron deficiency anemia on the pregnant women its outcomes that it has many serious consequences on increase the risk of fetal growth retardation, premature delivery. **Aim of the study**: To assess clinical audit which used for the pregnant woman with iron deficiency anemia. **Research design**: descriptive design was carried out in this study. **Setting:** All Maternal and Child Health centers in Qena City and Minia City which were four centers in Minia and six centers in Qena. **Sample: convenient** sample of 500 records of pregnant women. **Tool of data collection**: **Tool** 1: questionnaire sheet includes the socio-demographic include personal and obstetrical history**. Tool** 2: Standard of care for the pregnant with iron deficiency anemia adopted from (WHO) source. **Results**: we found that 76% in Qena city versus 82%in Minia city had mild anemia, while 24% in Qena city versus17.6% had moderate anemia. Absence of woman with severe and very severe anemia .distribution of Mild and Moderate anemia was higher in urban. More than 75% of standard points were applicable in the two governorates. **Conclusion**: The present study concluded that the nurses of Maternal and Child Health centers didn't apply all points of WHO audit. **Recommendations**: Every healthcare facility should develop and implement an Annual Clinical Audit Forward Plan as part of its annual planning and delivery cycle for clinical audit activities and the facility's safety and quality governance framework. Health care providers need further training to apply clinical audit completely .Health care records needed updated to conclude all point of WHO clinical audit related to absence of some of care services to pregnant woman.

Introduction

The clinical audit is an important integral part of standards it includes a checklist and action plan. The checklist can be used to test or audit the standards. The action plan is the critical part of the audit .Its importance is highlight on areas which need strengthening or correcting and assist the supervisor, mangers in their routine supervisory care. Without making changes after the audit, standards will be difficult to maintain and impossible to improve. **(Saragiotto et al, 2014)**

Iron deficiency anemia during pregnancy is one of the most serious health problems in the world. Its expansion is more in developing countries, of its results that it has many serious consequences on increase the risk of fetal growth retardation, low birth weight, premature delivery, increased perinatal mortality, and reduced resistance to infection for both mother and baby. Later on, it has a pernicious effect on health for both mother and baby if dropped out without treatment. **(AlzahebAl-Amer, 2017)**

Significance of the Study

Audit is a tool to improve the quality, effectiveness and efficiency of care provided to patients by measuring the existed standards and changing behavior against them when required. To improve the quality the findings of an implemented audit have to be sent to all the health care professionals who had taken part in it with recommendations for improvements in their day to day work **(Grol et al, 2013)**

World Health Organization (WHO) evaluates that two billion people over 30% of the world's populations are anemic, although prevalence rates are inconstant because of variation in socioeconomic conditions, lifestyles, food habits, and rates of communicable and non-communicable diseases. **(Chandra & Sun, 2015)**

World Health Organization (WHO) motivates that hemoglobin ideally should be maintained at or above 11.0 g/dl, and should not be allowed to fall below 10.5 g/dl in the second trimester. As regarding WHO guidelines, anemia has classified as: (A) Mild anemia (Hb 10 to 10.9 g/dl); (B) Moderate anemia (Hb 7 to 9.9 g/dl); (C) Severe anemia (Hb less than 7 g/dl); (D) Very severe (Hb less than 4 g/dl**). (Breymann, 2015)**

Both industrialized and developing countries have elevation rates of iron deficiency anemia during pregnancy. Rating from the World Health Organization gives an account that from 35% to 75% (56% on average) of pregnant women in developing countries, and 18% of women from industrialized countries are anemic. **(Ponte Polo, 2018)**

Aim of the study

Aim of the present study was to assess clinical audit which used for the pregnant woman with iron deficiency anemia.

Research design

Descriptive design was carried out in this study.

Setting

This study was conducted at all maternal and child health centers (MCH) are in Qena City which are six Centers and all MCH centers in Minia City which are four Centers. Including Qena centers (Hai El-masaleh,sady abd el-reheem,sady omar,El-maana,Babdar Qena, madina El-omal)and Minia centers(Reaya el- osra(1), Reaya el- osra(2), El -Sharky Medical Centre Health 1 , El-araby Medical Centre Heath 2).

Sample

A convenient sample of (500) pregnant women records in six maternal and child health centers at Qena city and four maternal and child health centers at Minia city. sampling technique was included in the study according to the following criteria :

Inclusion criteria

A pregnant woman which their hemoglobin level was <11 g/dl.

Exclusion criteria

A pregnant woman which their hemoglobin level was ≤11 g/dl.

Data Collection Tools of the Study

Two tools was used in this study:

- **Tool I** A questionnaire sheet includes socio-demographic data as case history, obstetric history (gravity-parity-abortion-live children).
- **Tool II**: Standard of care for the pregnant with iron deficiency anemia adopted from (WHO, 2010) source, occur some modification by the investigator associated with the study.

Results

Table (1): Distribution of studied sample per their demographic characteristics (n=500) at Qena and Minia city:-

Demographic characteristics	Qena (n=250)		Minia (n=250)		X^2	P – value
	No.	%	No.	%		
Age / years						
18 - < 23	62	24.8	88	35.2	7.467	.113
23- < 28	78	31.2	60	24.0		
28- < 33	69	27.6	67	26.8		
33- < 38	34	13.6	30	12.0		
38 – 42	7	2.8	5	2.0		
Mean ± SD	26.8 ± 5.4		26.1 ±5.6		t=1.553	.121
Residence						
Rural	142	56.8	1	.4		
Urban	108	43.2	249	99.6	19.717	.000

Table (1) shows that distribution of the studied sample in step with their demographic characteristics and it had been found that 35.2% of pregnant women in Minia versus 24.8% in Qena city aged (18 - < 23), also reveal that 24% of ladies in Minia versus 31.2% in Qena aged (23- < 28).As regard residence, quite half of women from rural areas in Qena while in minia 99.6 % were from urban . P-value of them which is very statistically significant. In Minia and Qena city most of pregnant women were at their age group (18-<23) years. In Minia and Qena city were few pregnant women at (38- <42). Age of the studied pregnant women from (18-42) at Minia city had a mean of 26.1 ±5.6, while in Qena city was 26.8 ± 5.4.

Part II Table (2): Standard of care for the pregnant with iron deficiency anemia (n.500)

Standards	Qena		Minia		Fisher	P – value
	No.	%	No.	%		
1-Give all pregnant women a standard dose of 60 mg iron+400μg folic acid daily for six months daily.	250	100	250	100.0	0	1
2-Where the prevalence of anemia in pregnancy is over 40%, advises the lady to continue the prophylaxis for 3 months in the postpartum period.	250	100	250	100	0	1
3-Give iron supplementation even if folic acid is not available.	250	100.0	250	100.0	0	1
4-Examine or screen all women for anemia during antenatal visits by drawing blood and determine hemoglobin concentration.	250	100.0	250	100.0	0	1
5-Give anemic pregnant woman 120mg iron daily for 3 months.	0	.0	0	0	0	1
6-Follow-up in two weeks to check clinical progress, test results and compliance.	250	100.0	250	100.0	0	1
7-follow-up again in four weeks later all women with severe anemia that are treated with iron and folate therapy	250	100.0	250	100.0	0	1
8-Refer women with severe anemia to a higher level of care, if they are in the last month of pregnancy.	250	100.0	250	100.0	0	1
9-Refer women with severe anemia to a better level of care, if they have signs of respiratory distress or cardiac abnormalities such as edema	250	100.0	250	100.0	0	1
10-Refer women with severe anemia to a better level of care, When the conditions don't improve or worsen after one week of iron or folate therapy.	250	100.0	250	100.0	0	1
11-provide advice on the consumption of iron-rich food and vitamin C.	250	100.0	250	100.0	0	1
12-Record test results and also the treatment provided within the woman health's card.	250	100.0	250	100.0	0	1

Table (2) shows that following two items of standards (Where the prevalence of anemia in pregnancy is over 40%, advise the woman to continue the prophylaxis for 3 months in the postpartum period) and (provide advice on the consumption of iron-rich food and vitamin (C) wasn't applicable, while the other points of standard were applied completely and the way of clinical practice was similar within the Minia and Qena city.
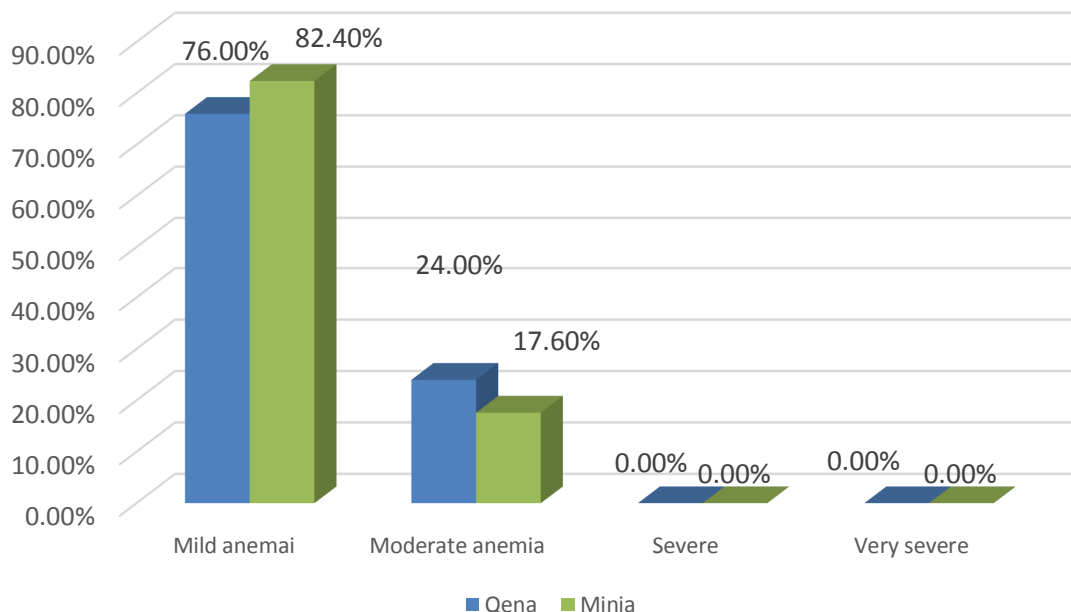

Figure (1): percentage distribution of levels of anemia in Qena and Minia city

Figure (1): cleared that percentage distribution of levels of anemia in Qena and Minia city revealed that mild anemia was over three quarter (76%) in Qena city and 82% in Minia city .moderate anemia was high in Qena city(24 %),Severe anemia ,and Very severe anemia were zero within the two governorates
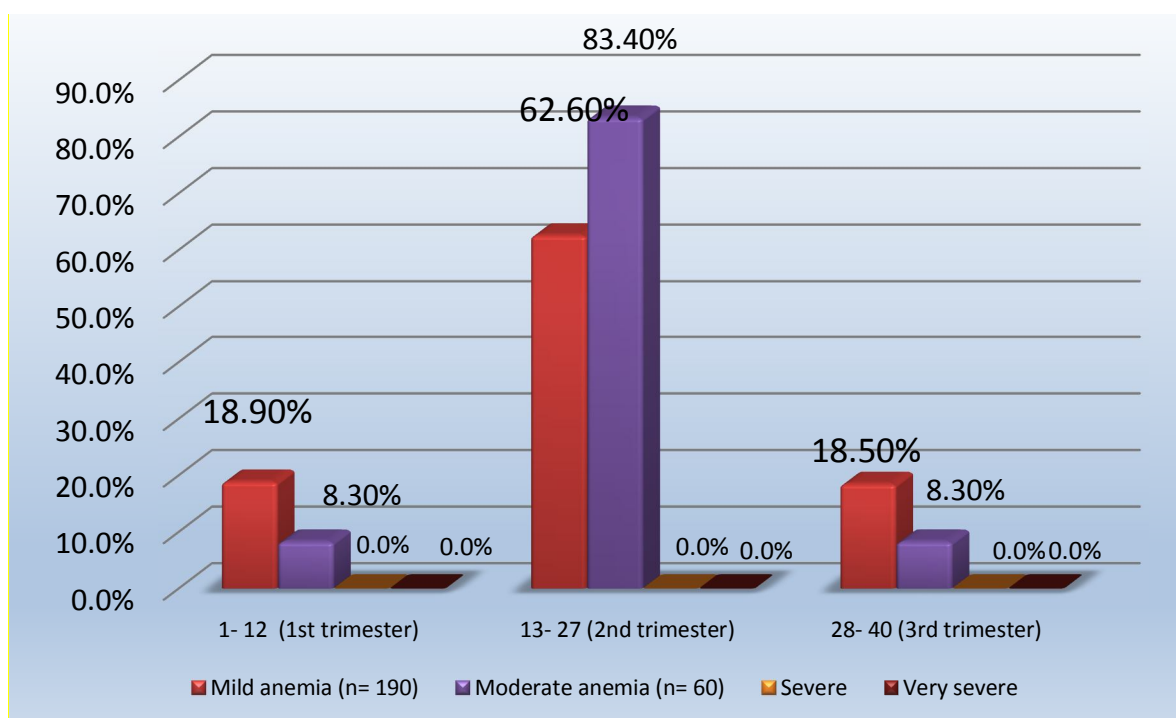

Figure (3): frequency distribution between hemoglobin level of pregnant women and their gestational age at Qena city

Figure (3):distribution of hemoglobin level of pregnant women to their age at Qena city showed that with in the 1 st trimester moderate anemia was fewer than mild anemia ,in 2 nd mild anemia was fewer than moderate anemia, in third trimester moderate anemia was fewer than mild anemia ,but high percentage of women in 2 nd trimester had mild and moderate anemia .
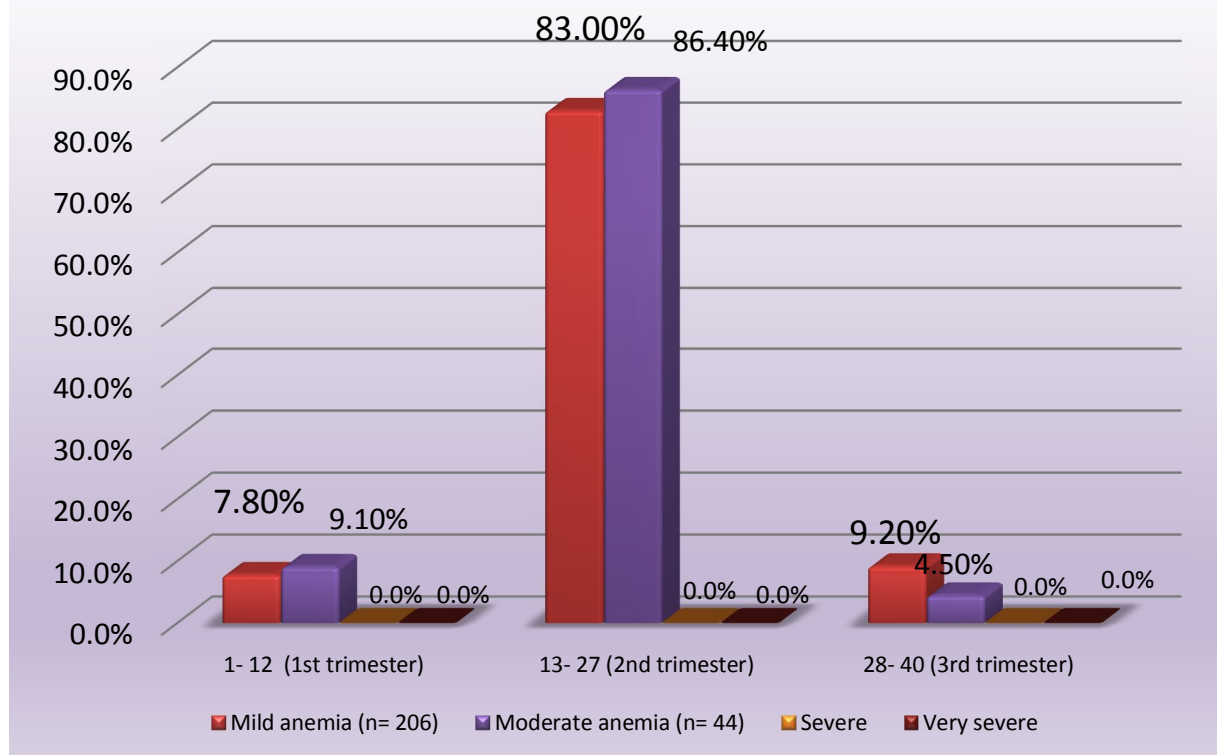
Figure (4): frequency distribution between hemoglobin level of pregnant women and their gestational age at Minia city

Figure (4): distribution of hemoglobin level of pregnant women to their gestational age at Minia city showed that within the 1 st trimester mild anemia was fewer than moderate anemia ,in 2 nd mild anemia was fewer than moderate anemia, in 3 rd trimester moderate anemia was fewer than mild anemia ,but high percentage of women in 2 nd trimester had mild and moderate anemia.

Discussion

The present study comprises 500 anemic pregnant woman records, who attended MCH centers during the year 2017, also regarding socio-demographic data .it was considered that pregnant woman hemoglobin level should be less than 11mg/dl. within the present study, elected to assess the appliance of clinical audit for pregnant women with iron deficiency anemia due to great weight of this subject. standard of take care of anemic pregnant women was prepared by WHO and systematically we evaluated against the current practice and further monitoring are accustomed observe refinement in health care provision.

As regards clinical audit, no prior studies discussed application of clinical audit, but demonstrated management of iron deficiency anemia in pregnancy as screening, diagnosis, treatment, complication, level of anemia with auditing after delivery anemic pregnant women demonstrated that over three quadrants were applicable except the subsequent points: first point Where the prevalence of anemia within pregnancy is over 40%, advise the woman to continue the prophylaxis for 3 months in the postpartum period because the relationship between pregnant women and MCH center discontinued after delivery. In congruence with **(Tolkien et al, 2015)** there was no directory of follow up or referral associated with Hb level, Follow-up is needful to organize referral or further medical awareness. It's important that primary health care providers are able to take mark and cure or transfer individuals with severe anemia. Indonesian Midwifery Standards don't remind about the continuation as Iron Guidelines, but the sole condition that any severe anemia case should be said to the hospital for further management. In Indonesia, midwives only recommended treating mild to moderate anemia. From the

clinical record review, there was no specific follow up or referral linked to Hb level. The pregnant women were only asked to attend for Antenatal Care supported national standard (once a month in Trimester I and II, twice a month until 36 weeks of gestation, and once per week after 36 weeks of gestation). This might be understood since there was no routine screening of Hb levels, that the women weren't asked when to return to check the following Hb level. also, this audit was conducted at a hospital, so there was no referral performed. Second point: provide advice on the consumption of iron-rich food and vitamin C because records containing delivered care to pregnant women not containing this point. From the interview, the midwives at the antenatal clinic gave education on anemia which iron tablets, but there's no recorded educational session. The midwives usually provide knowledge on the influence of anemia which iron tablets may minimize the danger of anemia. Furthermore, midwives and obstetricians frequently prescribed iron tablets and folic acid but this was not taken by an appropriate demonstration on dietary structure. They told the women about the dosage and also the proper time to pull the iron tablets but didn't provide notice about what form of food can prevent or increase iron absorption.

Levels of anemia in Qena and Minia city revealed that mild anemia was more than three quarter in Qena city and 82% in Minia city .moderate anemia was higher in Qena city nearly one quarter,Severe anemia and Very severe anemia were zero in the two cities . In congruence with, **(Zekarias etal, 2017)** out of all anemic pregnant women about 59.7% were mildly anemic, 33.3%were moderately anemic and therefore the rest 7% were severely anemic.

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Regarding demographic characteristics ,it was found that the overwhelming majority of pregnant women was in Qena city quite three quarter (78%) among the age (23- < 28)yrs and vast minority at(38-42)yrs, but in Minia city, The numbers of the pregnant women were found to be highest among the age group of (18-<23) and lowest at(38-42)yrs. In both cities, the vast minority were at (38- <42)yrs. Meanwhile, in the study of **(Waldenström etal,2017)** the age distribution of the pregnant women was found to be highest among the age between 25-30 years old 37%, followed by pregnant women with the age 25 yrs old 35% and these findings on the same line with Qena city results.

Regarding residence quite half of the women were from rural areas in Qena city, while in Minia nearly one 100% from urban and its highly significant. in rural areas Mild and Moderate anemia was higher in Qena city, while in urban areas Mild and Moderate anemia was higher at Minia city, within the two city, severe and really Very severe anemia was zero.

On the contrary, at the study of **(Adam etal,2018)** Pregnant women living in urban areas nearly one quarter less likely to be anemic during pregnancy than women in the rural area, the previous result didn't match with this study. The difference within the socioeconomic status, educational, and occupational status of pregnant women, the difference within the health service access between rural and urban areas may be the justification for the difference.

Regarding Hemoglobin distribution, mild anemia was more prevalent in Minia city, but moderate anemia was more prevalent in Qena city.

In Qena city, in the1st trimester moderate anemia was fewer than mild anemia, in 2nd trimester mild anemia was fewer than moderate anemia, in 3rd trimester moderate anemia was fewer than mild anemia, but the overwhelming majority of women in2nd trimester had mild and moderate anemia.

In Minia city, that within the 1st trimester mild anemia was fewer than moderate anemia, in 2nd mild anemia was fewer than moderate anemia, in 3th trimester moderate anemia was fewer than mild anemia, but the vast majority of women in 2nd trimester had mild and moderate anemia.in the two cities.

On the contrary, **(El Bilbeisi,2020)** the age group of the anemic pregnant women under our study showed different gestation periods;20.9%, 28.6%, 50.5% were within the first, second, and third trimester of pregnancy. Previous results didn't match with this study that showed that a high percentage found within the second trimester.

Conclusion

The present study is concluded that the results of the study showed that nurses of MCH centers in both Qena city and Minia city didn't apply all points of the WHO standard of look after for a pregnant woman with Iron deficiency anemia. The extent of mild anemia was higher in Minia city with 82.4%. Moderate anemia was higher in Qena city with one quarter. IDA during pregnancy have a negative impact for both mother and baby. Take care of the mother continued throughout the pregnancy stages only and relationship with MCH was discontinued after delivery. Moreover, from this study, we are able to conclude that nurses should comprehend clinical audit and WHO standard of take care of a pregnant woman with Iron deficiency anemia.

The age distribution of the pregnant women was found to be highest among the age (18-< 23) and lowest at (38-42), in Qena city a high percentage of pregnant women found (78%) among the age (23- < 28) and lowest at (38-42). Regarding residence over half the ladies from rural areas in Qena city, while in Minia nearly one hundred from urban and its highly significant. A high percentage of women in 2ndtrimester had mild and moderate anemia.in the two city.in Qena and Minia there weren't any women reported with severe or very severe anemia.

Recommendations

- Every health center should develop and implement an Annual Clinical Audit Forward Plan as a component of its annual planning and delivery cycle for clinical audit activities and also the facility's safety and quality governance framework.
- Health education activities are allotted to expand awareness among women and within the community of the importance of iron and folate supplementation in pregnancy.
- Health care providers need further training to use clinical audit completely.
- Health care records needed updating to concluded all clinical audit points.
- Follow-up relations between mother and MCH centers should be continued especially within the primary 3 months after delivery.
- A nationalistic policy and locally adapted guidelines for iron and folate supplementation are in place and are performed in correct way.
- Egyptian ministry of health should develop new strategies and plans to spice up the standard of care level regarding a clinical audit.
- Improve Clinical Practice: Audits aim to boost the standard of care through the systematic assessment of clinical practice.
- Health care providers of maternal and neonatal care are competent in: the importance of iron supplementation during pregnancy and also the postpartum period; the correct dosage and period of supplementation for the protection and remedy of anemia; anemia discovery in pregnant women; and when to refer women for supplementary diagnosis and treatment.

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