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Tele-follow up of anemic ANC Mother; subjective and objective correlation of anemia and potential improvement: Case report study

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Abstract

Background: The National Family Health Survey-4 (NFHS-4) data suggests that anemia is widely prevalent among all age groups, and is particularly high among the most Vulnerable – nearly 50 per cent among pregnant woman. Though government has provided free of cost treatment of anemia to all pregnant ladies, due to low adherence and compliance anemia is still prevalent among them. An operational study was done on 24 yr old anemic pregnant lady to study the potentiality of improvement to the adherence and compliance to anemia treatment during pregnancy using mobile social media technology.

Methods: We have used in depth interview method and observation by using mobile phone.

Results: Before tele-follow up patient's Hemoglobin level was 8.3 gm/dl which improved after 5th tele-follow up to 10 gm/dl and her adherence score was 3 out of 8 i.e. low level compliance that also had been increased to 6 i.e. medium level compliance

Conclusions: Tele-follow up method used during pregnancy motivated to improve her compliance, but also empowered her to act on external barriers such as improper prescriptions.

Keywords: Anemia, Pregnancy, Tele-follow up

Introduction

The National Family Health Survey-4 (NFHS-4) data suggests that anemia is widely prevalent among all age groups, and is particularly high among the most Vulnerable – nearly 50 per cent among pregnant woman. In developing countries, pregnancy outcomes show variation based on the type of anemia. The primary cause of anemia during pregnancy is likely to be due to plasma volume expansion, and this type of anemia is not associated with negative birth outcomes. Maternal hemoglobin values during pregnancy is associated with low birth weight and preterm birth in a U-shaped relationship, with high rates of low birth weight at low and high concentrations of maternal hemoglobin.

Under National Iron plus Initiative, all pregnant and lactating women are provided tablets of 100 mg elemental iron and 500 mcg folic acid tablets free of cost for 100 days starting after first trimester at 14-16 weeks of gestation and to be repeated for 100 days postpartum. However, adherence remains low over the years though anemia in pregnancy remains high. Causes of high burden of anemia is increased iron requirement due to tissue, blood formation and energy requirement during pregnancy, Iron loss from post-partum hemorrhage Teenage pregnancy, repeated pregnancies with less than 2 years interval. About 20% maternal deaths is due to anemia. Iron deficiency anemia contributes adversely pregnancy outcomes.

Iron deficiency anemia during pregnancy is associated with an increased risk factor for maternal low weight gain, preterm labour, and placenta previa, premature rupture of membrane, cardiac arrest, and hemorrhage, lowered resistance to infection, poor cognitive development and reduced work capacity. Similarly iron deficiency anemia on fetal and neonatal is increasing risk factor of prematurity, low birth weight, fetal distress which contribute to perinatal morbidity and mortality [2, 3]. Anaemia control efforts in India started in 1970 with supplementation of Iron and folic acid across age groups but still IFA coverage remained less than 30%. According to WHO's compliance with IFA cut off pregnant woman is expected to take ≥ 90 IFA tablets on daily basis [4]. Studies showed that side effects, forgetfulness and shortage of supplement was major reason of non-compliance with IFA [5].

Conversely another study confirmed that side effects of IFA had very limited influence on compliance, while by decreasing side effects of IFA may not be a successful strategy for improving compliance with IFA [6]. One of the study shows the reasons for noncompliance of IFA tablets is experiencing side effects, forgetfulness, nausea, heartburn, fear of fetal size increment is 3.3%, 4.7%, 7.1%, 11.1%, 30.3% respectively [7]. Woman who know the importance of iron folic acid, woman who develop complications during previous pregnancy, experiencing iron folic acid related side effects during the previous pregnancy was independent predictor of compliance with iron folic acid. Health care providers shall strongly counsel the importance and side effect of iron folic acid before prescribing [8]. The prevalence of anemia during pregnancy varies considerably because of differences in, for example, socioeconomic conditions, lifestyles, and health seeking behaviors across different cultures [9]. Though government has provided free of cost treatment of anemia to all pregnant ladies, due to low adherence and compliance anemia is still prevalent among them [10]. An operational study was done on 24 yr old anemic pregnant lady to study the potentiality of improvement to the adherence and compliance to anemia treatment during pregnancy using mobile social media technology. An attempt has been made to employ use of mobile phones of pregnant woman regarding follow up of anemia and response to the concerns related to it. The study was done taking in to account only the anemic pregnant lady.

Objectives

1. To assess expediency of live mobile call for improving adherence related to therapeutic treatment of anemia and severity of anemia in pregnancy.
2. To assess any improved compliance related to treatment of anemia in pregnancy by using 'Health belief model' through live mobile call.
3. In this paper, we has demonstrated case study of pregnant woman and described the course of improving compliance using health belief model.

Material and Methods

We have used in depth interview method and observation by using mobile phone. After obtaining consent – by way of counseling, discussion and creating awareness – one anemic pregnant lady was enrolled in study in intervention group during her 10th week gestation and her Hb recorded from ANC records during that time was 8.3gm/dl. Enrollment was done from ANC records of new ANC registration available with ANM of area.

First tele follow up (at 11th week)

She was inquired about intake of IFA supplements, it's dosage and whether she is facing any difficulty in adhering to treatment plan for anemia.

Observation

Lady has collected IFA supplements from PHC but not taking it.

Actions

She was made aware that she has anemia and she was given information and knowledge on correct dosage (2 tablets/day

for anemic pregnant lady as per Government guidelines) and also made aware about negative consequences of anemia on her health as well as on health of baby.

Second tele follow up (at 14th week)

In 2nd call, asked about intake of IFA supplements & also asked about any dietary instructions provided. To this she has responded that she has initiated taking two IFA supplements but not aware of dietary instructions.

Actions

She was given proper dietary instructions that need to be followed. She was asked to avoid tea/ coffee with food & also encouraged to take green leafy vegetables and take lemon water with IFA tablets if possible. She had again given reinforcement message of taking tablets on regular basis and benefits of it.

3rd tele follow up (18th week)

During this call, questions related MMAS-8 adherence tool. Average Score for it was 3 (low compliance).

Major reasons were

- Forgetfulness
- Difficulty in sticking to treatment plan
- Not taking medicine while leaving home
- Fear of increased weight of baby

Actions on 3rd call

She was again reminded that negative outcome is anemia and reassured about not to worry of increased size of baby. She was again reinforced with same message of taking tablets after 2 hr of meal on daily basis.

4th tele follow up (24th week)

Observation

Lady was skipping and forgetting medicine without any specific reasons like side effects but following dietary instructions.

Actions

She was suggested to use reminder option in her mobile phone on daily basis and also given message to visit nearby health center in this month and get Hb done from health center.

5th tele follow up (30th week)

When asked about visiting health facility, she replied that her Hb Was 10gm/dl(as written on health card given).

Action

She was again made aware that she is not totally out of risk now and she has to continue tablets twice daily till delivery.

6th tele follow up (36th week)

Now she was taking tablets every day and was told not to skip further again highlighting importance of IFA. Final average adherence score was 6/8 (medium level compliance)

7th tele follow up (after delivery)

For enquiring delivery outcome

- POG at delivery: 41 week of gestation
- Type of delivery: Normal
- Hb at delivery: 11.1g/dl
- Weight of baby: 2.70 kg

- Delivered at PHC without complications, no referral needed

Result

Table 1: MMAS adherence level with respect to tele-follow up

No of Tele-follow up	MMAS Adherence level
1.After 3 rd tele-follow up	3/8 (Low level compliance)
2.After 6 th tele-follow up	6/89(Medium level compliance)

Table 2: Haemoglobin level with respect to tele-follow up

No of Tele-follow up	HB level
1.Before tele-follow up	8.3gm/dl
2.After 5 th tele-follow up	10gm/dl
3.After Delivery	11.1 gm/dl

Above tables shows that before tele-follow up patient's Hemoglobin level was 8.3 gm/dl which improved after 5th

Major key concepts

Concept	Defination	Application
Perceived susceptibility	One's belief of chances of getting condition.	Define the population at risk Personalize risk based on person's behaviour Heighten perceived susceptibility if toolow
Perceived severity	One's belief of how serious condition is & its consequences is	Specify and describe consequences of risk and condition
Percieved benefits	One's belief in efficacy of advised actions to reduce risk or seriousness of impact	Define action to take how, where, when Clarify positive effects to expected Describe evidence of effectiveness
Percieved barriers	One's belief in tangible and psychological costs of advised behaviour	Identify and reduce barriers through reassurance, incentives and assistance.
Cues to action	Strategies to activate readiness	Provide how to information Promote awisness Provide reminders
Self-efficacy	Confidence in one's ability to take action	Provide training, guidance and positive reinforcement.

Conclusion

This case study demonstrates that interventions and actions through Health belief model helped lady to take different actions. It not only motivated to improve her compliance, but also empowered her to act on external barriers such as improper prescriptions and food myths.

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Declarations

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tele-follow up to 10 gm/dl and her adherence score was 3 out of 8 i.e. low level compliance that also had been increased to 6 i.e. medium level compliance.

Discussion

Definition and rational behind health belief model

Health belief model is framework for motivating people to take positive health actions that uses desire to avoid negative health consequence as prime motivation. It is important to note that avoiding negative health outcome is key concept behind health belief model. It is based on the understanding that person will take health related action if that person

1. Feels that negative health condition can be avoided
2. Has positive expectation that by taking recommended action, he/she will avoid negative health condition and
3. Believes that he/she can successfully take a recommended health action.