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ABSTRACT

Background: Clinical guidelines when implemented correctly have shown to improve disease outcomes. This study describes utilization of Kenya National guidelines in managing ante partum haemorrhage (APH) in 3rd trimester.

Objective: To describe adherence to clinical guideline in management of antepartum haemorrhage at Garissa Provincial General Hospital Design: Crossectional mixed methods study

Setting: Garissa Provincial General Hospital

Subjects: Medical records of patients managed for APH between 2002 and 2012 and Key Informant Interviews (KIIs) of Health workers.

Results: 36.1% of the cases assessed were managed with strict adherence to guidelines. 90% of health care workers had high levels of awareness of the existence of guidelines and sited utilization challenges attributed to resource inadequacies.

Conclusion: Clinicians are skilled on APH guidelines, but adherence levels are still low. Therefore, continuous appraisal of clinical practices, availing equipment, facilities and supplies to reinforce adherence is recommended.

INTRODUCTION

Despite wide promulgation, clinical practice guidelines have had limited effect on changing physician behaviour. Little is known about the process and factors involved in changing physician practices in response to guidelines (Cabana & Rand, 1999) (2). Third trimester APH is bleeding in pregnancy after 28 weeks gestation. In Kenya, clinical guidelines recommends, to first stabilize patient hemo dynamically then perform vaginal delivery if bleeding persists, gestational age more than 36 weeks, minor

degree placenta praevia, patient in labour and/ or presentation is favourable for vaginal delivery. Caesarean section delivery is to be performed if excessive bleeding, gestational age more than 36 weeks and a major degree of placenta praevia.

In those with abruption placenta, conservative management is opted if bleeding stops or if is minimal, and if there is need to prolong pregnancy and foetal condition is stable. However, if bleeding persists, and/ or foetal condition is unstable regardless of gestation a double setup pelvic examination in theatre is

to be done. Thereafter, Artificial Rupture of Membranes (ARM) is performed if in labour or abdominal delivery if bleeding excessively, or in severe placenta praevia or labour complication.

In Kenya, these guidelines are the standard of care and were revised in 2012 from a previous version of 2006; and adherence levels have never been evaluated in both versions.

STUDY OBJECTIVES

To determine awareness and perception on the Kenya Ministry of Health(MOH) guidelines by Health Care Workers (HCW) on management of 3rd trimester APH To relate the management of 3rd trimester APH to the prescribed standard procedure and compare outcomes in those in whom guidelines were adhered to those in whom the guidelines were not adhered to (the outcomes of note being maternal mortality, stillbirth, asphyxia, blood transfusion, near miss for adverse outcomes, well baby and mother for favourable outcomes.

METHODS

The study had ethical approval from ethics review board of UON/KNH and signed informed consent from KII. It was a prospective mixed method study that used both qualitative and quantitative data collection methods. The study site was Garissa General Provincial Hospital, the main government hospital in North Eastern Region of Kenya and parts of Somalia has 18 maternity bed capacity and 4 delivery beds. Based on corrected fishers' formula, 87 cases were randomly selected from admission book dating between 2007 and 2012 for review; of which only, 61 health records were found to be complete and therefore assessed. In this study, a good outcome encompasses a live birth/foetus, short hospital stay which is 24hours after vaginal delivery and 72 hours after caesarean delivery, and a well and satisfied mother. Adverse outcome includes

maternal mortality, anaemia, postpartum haemorrhage, shock, low birth weight, blood transfusion, stillbirth and asphyxia. As for qualitative data, all 21 maternity staff that included qualified midwives, clinical and medical officers and obstetrician were interviewed. Data was then entered into SPSS 17, checked for completeness, errors and outliers. Summarized data was represented in tables, graphs and charts. Data analysis was conducted to determine strength of association between dependent and independent variables using chi- square test for categorical variables and students' t-test for continuous variables.

Strict adherence levels were calculated as all steps as outlined in the guideline were followed. Correlation of data was also analysed between different variables.

RESULTS

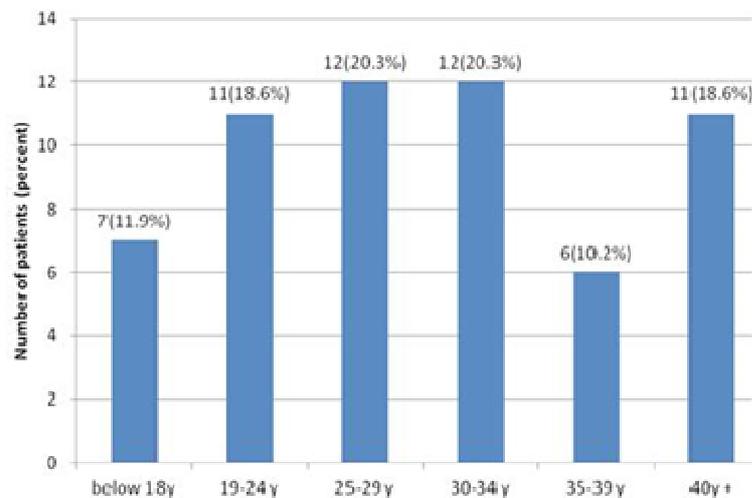
Health worker awareness and perception guidelines: 21 health care workers (HCW) were interviewed, 18 of who were aware of the clinical guidelines, while the remaining 3 reported it was their first posting into an obstetric unit, and that no regular updates on recent advances in obstetrical care and the guidelines were available. 21HCW felt that guideline awareness could be raised by improving availability of guidelines and conducting trainings on the same through Continuous Medical Education (CME). Most (n = 17) HCW thought that the APH guidelines were useful, and sited that they helped in direct patient management, improved pregnancy outcomes (reduced mortality) and helped to standardize the care provided at the unit. In addition, 3 main strategies were proposed to improve the usefulness of the guidelines: increasing their availability, training health workers on guideline recommendations and availing resources and equipment required to provide guideline recommended care. Approximately one-half of interviewed health workers had

received training on the APH guidelines and all these trained staff felt that guideline training had improved their clinical skills and preparedness for managing APH patients.

Obstacles in guideline utilization: The HCW reported obstacles to uptake of guidelines as either delay in getting laboratory and radiologic results, uncooperative patients, lack of resources and lastly that some guidelines were 'not understandable'.

Patient characteristics: 61 women admitted with 3rd trimester APH from January 1st 2007 to July 31st 2012 were included in the study. The average age of patients was 30.8 years (SD = 10.4) and the age range was 16 to 62 years. Most patients were 25-29 years (20.3%) and 30-34 years (20.3%), while the rest 7 (11.9%) were 18 years (Figure 1).

Figure 1
Percent distribution of patients with 3rd trimester APH at Garissa PGH



Guideline uptake: Guideline adherence in this study was evaluated in five specific areas namely identification of clinical features, pelvic examination, delivery plans, regular foeto-maternal monitoring, and identification and correct management of ruptured uterus.

Of the 4 guideline recommended clinical features, most had at least one identified (Figure 2) while inappropriate pelvic examination was conducted in 19 (31.2%) patients (Table 1). There were 55 (90.2%) patients with a delivery plan while 6 (9.8%)

patients without delivery plan were admitted with no indication for immediate delivery (Figure 3). Those who had regular monitoring of all three signs of foeto-maternal wellbeing (maternal pulse rate, maternal blood pressure and foetal heart rate) was documented in 32 (52.5%) of patients (Table 2). Lastly of the patients managed for ruptured uterus were 9 (14.8%) and only 5 (66.7%) had guideline recommended management of Explorative Laparotomy (Table 3).

Table 1
Digital and speculum examinations conducted among APH patients at Garissa PGH according to cause of APH

APH cause	Pelvic examination		
	Digital	Speculum	No Pelvic Examination
No identifiable cause	8(80)	2(20)	1
Abruptio placenta	8(50)	8(50)	-
Placenta praevia	4(23.5)	13(76.5)	-
Other	7(43.8)	9(56.3)	1
Total	27	32	2

Table 2
Foeto-maternal monitoring of 3rd trimester APH patients at Garissa PGH

	Frequency	Percent (%)
Foeto-maternal monitoring		
Pulse rate	36	59.0
Blood pressure	42	68.9
Foetal heart rate	51	83.6

Composite Guideline adherence: Overall guideline adherence was defined using a composite index obtained by calculating the proportion of patients who had all four guideline recommendations implemented: documentation of any clinical features of APH (PV bleeding, BP changes (hypertension or hypotension), tachycardia and abdominal pain), identifying APH cause, conducting vaginal examination and foeto-maternal monitoring.

Based on the above definition, 22 out of the 61 patients were managed according to guideline recommendation giving a complete

guideline adherence rate was 36.1%. Adherence rates for the different guideline management components are presented in Table 4.

There was a significant association between cause of APH and guideline adherence (Fisher’s exact $p = 0.015$), Table 3. Adherence to clinical guideline recommendation associated with outcome (Pearson’s $\chi^2 = 4.2$, $p = 0.04$). Fifteen (68.2%) of the 22 patients receiving guideline recommended care have live births compared to 41% ($n = 16$) of the 39 patients who did not receive guideline recommended care (Table 4)

Figure 3
Indications for SVD and CS delivery among APH patients at Garissa PGH

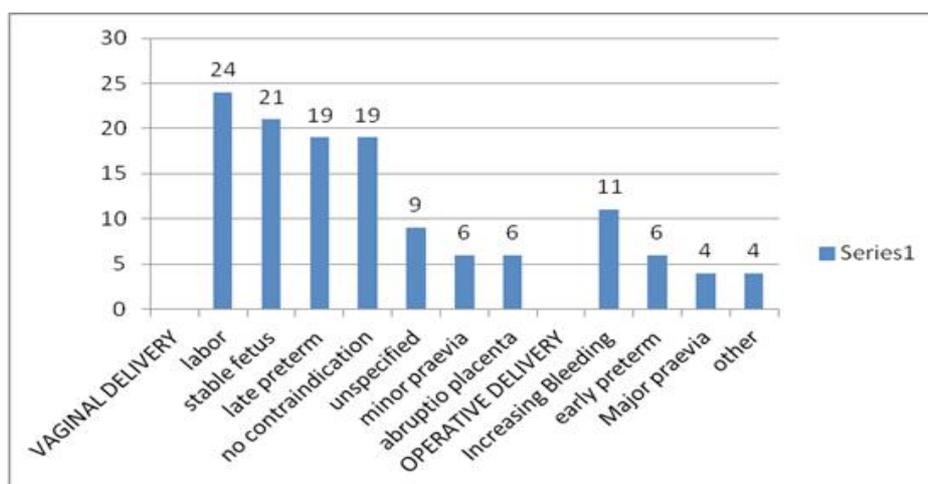


Table 3
Comparison of adherence levels with identifiable diagnosis

	Complete adherence		P value
	Yes	No	
Abruptio placenta	5 (31.3%)	11 (68.7%)	0.015
Placenta praevia	10 (58.8%)	7 (41.2%)	
No identifiable cause	0 (0%)	10 (100%)	
Other	7 (38.9%)	11 (61.1%)	

Table 4
Guideline adherence and third trimester APH outcome at Garissa PGH

	Outcome		P value
	Live birth	Adverse outcome	
Guideline adherence			
Yes	15 (68.2%)	7 (31.8%)	0.04
No	16 (41%)	23 (59%)	
	31 (50.8%)	30 (49.2%)	

DISCUSSION

This study showed that although HCW are familiar and deem important these guidelines, uptake is poor. This reflects an existing gap between knowledge, attitude and clinician behaviour in implementing proven clinical practice.

Similar findings done in Kenya's busiest maternity hospital, concluded that the adherence to Kenya Ministry of Health (MOH) guidelines in management of severe pre-eclampsia and eclampsia in Pumwani Maternity Hospital is poor. Studies on the reasons for poor adherence and implementation need to be carried out overall adherence to MOH guidelines were 31.4% (D & Koigi-Kamau, 2016) (3).

Some of the obstacles cited by the HCW which are in keeping to those outlined by the McDonnell norms group (Merrick, 2011) (4) that included external barriers such as inability to reconcile patients' preference with guideline recommended practice and environmental factors such as lack of resource and time delays. These ranged from

institutional failures such as laboratory/radiology delays; failure to reconcile patients' preference to guideline recommended practice such as delays in getting patient consent to treatment and poor disclosure of clinical history (Cabana & Rand, 1999) (2). Others studies specifically McDonnell Norms Group added an eighth barrier to those of Cabana as failure to make guideline based advice available at point of care, rather than relying on the ability of clinician to read, remember and properly apply these guidelines (Cabana & Rand, 1999) (2).

In conclusion, there is need for regular scheduled evaluation of guideline adherence with identification of unique barriers to uptake, and eradicating these obstacles for continued quality maternal and neonatal healthcare.

What is already known about this topic:

That there is a gap between knowledge and practice amongst clinicians, and there needs investigation on potential obstacles to improve quality of care.

What this study adds: This study highlights the gaps in clinical practice as regards knowledge and actual implementation, and aims to explain why they exist. This in long run will advise policy makers on areas to focus on concerning improving quality of care.

Also guideline utilization in Kenya has not been assessed previously and therefore this study adds knowledge in this regard.

COMPETING INTERESTS

There are no financial or non-financial competing interests associated with this study.

AUTHORS' CONTRIBUTION

Rosa Chemwey, the primary investigator, for following through with the study from proposal stage to publication.

James Kiarie for overseeing that the research was well developed, scientifically viable through guidance on proposal development and data analysis.

John Kinuthia involved in proposal development and data analysis ensuring publication of this manuscript.

Koigi Kamau for participation at the initial phase of proposal development and fine tuning the objectives and publication

Rose Kosgei for their participation at the initial phase of proposal development, fine tuning the objectives methodology, analysis and publication reviews

Wycliffe Musalia at Garissa Provincial General Hospital who was involved data collection.

Elizabeth Maleche-Obimbo involved in proposal development and data analysis ensuring publication of this manuscript.

Bonface Osano involved in proposal development and data analysis ensuring publication of this manuscript.

Fred Were involved in proposal development and data analysis ensuring publication of this manuscript.

Dalton Wamalwa involved in proposal development and data analysis ensuring publication of this manuscript.

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