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Research Article

Assessing the Need of Triaging the Obstetric and Gynecology Patients in Low Resource Countries

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Abstract

Background: Triage includes brief and focused assessment and patient allocation to an acuity level based on the severity of their condition to provide necessary treatments in the shortest possible time.

Materials and Methods: This was a retrospective study. We collected data from data registers and files and analysed it on the basis of complaints/symptoms, clinical findings, hemodynamic parameters and diagnosis, of the women who were admitted in emergency obstetric unit. Women were categorized into five acuity levels according to Revised Obstetric Triage and Acuity Scale (OTAS) to find the number of women requiring emergency and resuscitative care.

Results: A total of 387 women's data was analysed. Majority of women 156 (40.3%) were admitted for labor pains and 191 (49.3%) for other pregnancy and gyanecological issues. Women who were admitted had following degree of acuity: one (resuscitative - 7.2%), two (emergent - 42.9%), three (urgent - 12.7%), four (less urgent - 5.9%), and five (non-urgent - 31.3%).

Conclusion: We concluded that almost 50% of the women coming to obstetric unit need emergency care and therefore triaging will help in proper utilization of resources, better distribution of workload and will improve the quality and efficiency of obstetric and gynecological care of women. Proper training to be organized for the health care professionals related to emergency obstetric units in order to implement the triaging tool in obstetrics.

Keywords: *Triage; Obstetrics and Gynecology Department; Hospital*

Introduction

The process of prioritization of the patients depending on their clinical condition so as to provide them treatment as early as possible is called Triaging [1]. Triaging means quick assessment of patient according to acuity level so that targeted treatment and management of patient can be done [1,2]. There are many triage guidelines related to emergency department which have been designed by many countries [3].

Various generalized emergency triage scales such as Canadian Triage and Acuity Scale (CTAS), Australasian Triage Scale (ATS), Emergency Severity Index (ESI), Manchester Triage Scale (MTS), South African Triage Scale (SATS) are there. Over time, studies have shown that in obstetrics and gynaecology triage there is limited applicability of generalized triage scales developed for other emergency

medicine department [2]. The reasons for this are first, obstetric and gynaecology triage requires not only assessment of mother but also assessment of foetus. The other reason is that the acuity scales are not specific for pregnancy [5]. Third, at most of the obstetric units, antenatal women are seen based on their arrival time rather than on their triage acuity level [6]. These drawbacks were related to Emergency department Triage scales, therefore in obstetric triage scales the determinants included were related to maternal and fetal well being. Many obstetric triage acuity scales have been developed and validated, including the Florida Hospital System (FHS) in 2010, Swiss Emergency Triage Scale (SETS) in 2011, followed by Obstetrical Triage Acuity Scale (OTAS) in 2012, The Birmingham Symptom-specific Obstetrical Triage System (BSOTS) in 2013, Maternal Foetal Triage Index (MFTI) in 2015 and, and the latest Iranian Obstetric Triage index in 2020. OTAS was revised in 2015 and included hemodynamic factors, respiratory distress, cervical dilatation, and foetal well being as acuity modifiers [2,6-9]. In July 2016, The American College of Obstetricians and Gynaecologists (ACOG) committee opinion emphasized on supporting triage systems and believed that the quality, safety, and efficiency of patient care processes would be improved by implementing standardized validated obstetric triage acuity tools [3].

The obstetric emergency unit is the first contact for the maternal patients for their assessment and treatment in the hospital [10]. In place of emergency department triage, obstetric triage is more specific as it not only involves the assessment of the labor conditions but also the assessment of foetus and also involves the test and interventions related to them [9]. The validation of the acuity scales is important to avoid 'under or over-triage' and thus wasting the human and financial resources [11]. The other disadvantage associated with using acuity scale is the unsatisfied patients due to long waiting hours [12].

There are many advantages when triage tools are used as it decreases the time of hospital stay, also decreases the cost as well as better utilization of hospital resources [6,8]. Triaging women in low-resource countries will improve the quality and efficiency of care and will also help to utilize the limited resources and could serve as a template for use in individual hospital obstetric units. Further, there is no standardized and widely accepted tool for obstetric triage in India endorsed by either Government of India or FOGSI. At London Health Sciences Centre, the researchers developed and implemented the Obstetrical Triage Acuity Scale, a five-category (one-resuscitative, two-emergent, three-urgent, four-less urgent, five-nonurgent) triage acuity scale with a complete set of obstetrical determinants. In OTAS various acuity scale based on woman's gestational age in pregnancy were divided such as less than equal to six weeks, more than equal to 20 weeks, postpartum upto two weeks are there [9]. This scale has the scope of widespread adoption and easy implementation.

Aim of the Study

The main aim of the study was to categorize the women admitted in obstetric unit using revised OTAS scale and to find the number of women requiring resuscitative and emergency care.

Materials and Methods

This was a single-centre, inpatient based, retrospective study. The present study was conducted at the Department of Obstetrics and Gynaecology, LN Medical College, Bhopal. It is a tertiary care centre. The data collection for the present study was initiated after the research protocol was approved by Institutional Ethics Committee with reference no:-LNMC&RC/Dean/2022/Ethics/011, dated 14/10/2022. We collected data from Clinical records and departmental registers from January 2022 to June 2022. We used the Revised Obstetrical Triage Acuity Scale (OTAS), which is a triage acuity scale with a complete set of obstetrical determinants which included complaint of the patient in the form of abdominal pain, bleeding per vaginum, symptoms of labor, fluid loss, history of abdominal trauma, hypertensive neurological signs and symptoms, signs of infection, respiratory complaints, hemodynamic parameters, status of cervical dilatation and foetal well being, to determine the acuity level among the women who were admitted in the obstetric unit. Women were categorized into five-categories: one-resuscitative, two-emergent, three-urgent, four-less urgent, five-non urgent depending on these parameters according to the data available. Data was analysed in percentages and proportions. The study was carried out in accordance with the Helsinki Declaration Principles.

Results

A total of 387 women were admitted in the emergency obstetric unit of the hospital. 156 (40.3%) women were admitted for labour pains and 191 (49.3%) with pregnancy issues like antepartum hemorrhage, intra-uterine foetal death, uteroplacental insufficiency, foetal growth restriction, elective lower segment cesarean section, induction of labour, preterm pain, for Cardiac Toco Graphy trace, Blood Pressure monitoring, decreased foetal movement, threatened abortion, hyperemesis Gravidarum, incomplete abortion. Rest 40 women were admitted for acute abdomen with ovarian torsion, menstrual complaints or post coital bleeding (Table 1). Of the total 156 women who came with labour pains, 58 women (37.2%) underwent emergency C-section.

Diagnosis		Total (n)	%
In labor		156	40.3
Pregnancy issues		191	49.3
	APH	7	1.8
	IUFD	5	1.3
	CTG monitoring	45	11.6
	Threatened abortion	5	1.29
	Induction of labour	14	3.6
	For BP monitoring	18	4.7
	With decreased foetal movement	27	7.0
	Preterm pain	46	11.9
	Hyperemesis gravidarum	4	1.03
	IV Iron Sucrose	6	1.6
	Incomplete abortion	14	3.6
Post-coital vaginal laceration		1	0.25
Acute abdomen		8	2.1
Menstrual complaints (Dysmenorrhoea)		26	6.7
Severe anemia		5	1.3
		387	100

Table 1: *Diagnosis of women admitted to the obstetric unit.*

APH: Antepartum Hemorrhage; IV: Intravenous; IUFD: Intra Uterine Foetal Death; CT: Cardiac Toco Graphy; BP: Blood Pressure.

After application of the Revised OTAS, 28 women (7.2%) were categorized into acuity level of one i.e. resuscitative. Further, about 166 (42.9%) women were categorized under acuity level of two i.e. emergent. Thus almost 50% of women belonged to acuity level one and two. Rest 50% women who were admitted in obstetric unit were of acuity level three, four, and five (Table 2 and figure 1). Further as can be seen in table 2, 37% women belonged to acuity level 4 and 5 which means that approximately one- third women attending the obstetric unit were of less urgent and non-urgent category.

Acuity	n	%
Acuity 1	28	7.2
Acuity 2	166	42.9
Acuity 3	49	12.7
Acuity 4	23	5.9
Acuity 5	121	31.3
Total	387	100.0

Table 2: *Acuity level of the women admitted to obstetric unit (n = 387).*

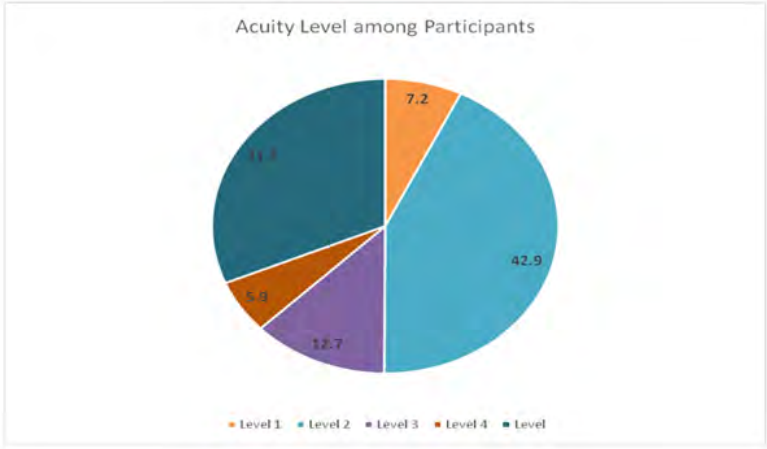

Figure 1: *Bar diagram showing acuity level of women.*

Discussion

A woman may visit the emergency department of Obstetric and Gynaecology for a variety of reasons ranging from reassurance about a common symptom to a life-threatening condition. A triage protocol is required for the most efficient management of patients and best utilization of the resources, while ensuring all precious lives are saved. This is critical because, in low- and middle-income countries like India, the emergency rooms are overcrowded, have prolonged waiting times, and limited resources including manpower. Even today, we have a very limited implementation of the acuity levels, especially at the large tertiary care centre [9].

Collectively, our findings suggest that amongst the women attending the obstetric unit, almost 50% women belong to acuity levels of 3, 4 and 5. Only half of them required emergency and resuscitative care. Thus, in the absence of a well-established triage protocol, all women would have been given equal importance and would have been handled by the available manpower.

In olden days, most of the widely adopted/used triage protocols included only a small number of high-acuity obstetric conditions that did not reflect the diversity of patients presenting to the obstetric emergency unit[13]. Most patients are treated on a 'first come first served' basis and thus the need of obstetric triage was identified. Similar realization was by Paisley KS., *et al*. who also observed that several patients with urgent acuity levels were given care after less urgent patients and thus implemented obstetric triage tool at their locality [7]. In another study conducted by Panicker S., *et al*. they analyzed the visits of 990 patients and noticed that most of the patients

were generally seen within 5 - 10 minutes, however, few cases that needed early intervention have to wait for half an hour, as the health workers were engaged in labour or other emergency [1]. For identifying the level of care given to the women in the obstetric units, we need more prospective studies done with the quality indicators. We firmly believe that the top priority for healthcare providers in any obstetric unit should be the assessment of every pregnant woman for 'maternal and fetal' wellbeing before providing definitive care to less urgent cases [14].

There have been development of Obstetric Telephone Triage system by Dutch, DOTTS [15] especially useful in conditions like COVID pandemic. Over time many triage tools have been revisited and revised for their reliability and validity [16-18]. In a systematic review in 2020, four tools were compared SETS, OTAS, BOSTS, MFTI in which they found that OTAS has higher reliability compared to other tools [19].

From development to implementation of any tool is a long process. To implement a change in the working system always carries challenges. Especially in low and middle income countries, where there is excessive patient flow and limited resources, implementation of the Obstetric triage system is challenging [20]. The barriers identified in the study by Angelini., *et al*. for the most optimal management of obstetric triage include, patient exaggerating their symptoms, four patients per healthcare worker, patients waiting for medical tests to be performed/results, multiple patients arriving at once, relatives of patients hampering the provision of care, and a shortage of staff on festivals/holidays [13]. OTAS system can be successfully implemented at tertiary, secondary, and primary healthcare level facilities. Experience from western countries (with well-developed obstetric triage systems) shows that obstetric triage protocols reduce the length of hospital stay and increase patient and staff satisfaction and also patients seeking emergency care are evaluated in structured way [15,16,18,21].

Conclusion

Triaging helps in dividing and using the resources according to the need of the people. In low resource countries, as the resources in the form of manpower or materials are already restricted and limited, if triaging is used the better use of resources would help in better care of the women. By doing this study we conclude that approximately half of the women coming to the obstetric units in a low resource country belonged to the acuity levels where women required resuscitation or emergency care and the other half of the women belonged to the lower acuity levels where women required urgent, less urgent or non-urgent care. One-third women belonged to less-urgent and non-urgent category. It concludes that in the absence of a triage system, the resources are being used equally for all categories of acuity levels. For better distribution of workload and use of resources and thus to improve the quality and efficiency of obstetric and gynaecological care for women, it is required that the Triage tools must be implemented in the low- resource countries. To establish triage tool for obstetrics and gynecology patients, hospital-based obstetric units should collaborate with emergency departments and other hospital services. Proper training needs to be organized for the health care professionals related to emergency obstetric units to implement triage tools in Obstetrics and gyanecology department especially the emergency obstetric units.

Conflict of Interest

None.

Acknowledgement0

The study was preregistered in our institution with the analysis plan.

Authors Contribution

Dr. Pooja Patil- Idea, Concept, Design, Supervision, Analysis and Interpretation, Writing the article, Critical Review.

Dr. Priya Mittal - Data collection and processing, Analysis and Interpretation, Literature Review, Writing the Article, References, Materials.

Disclosure

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