

REDUCING MATERNAL MORTALITY IN TURKEY: LESSONS LEARNED FROM THREE DELAYS MODEL

TÜRKİYE'DE MATERNAL MORTALİTE ORANLARININ DÜŞÜRÜLMESİNDE ÜÇ GECİKME MODELİNDEN ÇIKARILAN DERSLER

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ABSTRACT

OBJECTIVE: *To reduce maternal mortality in Turkey, efforts have gathered momentum recently. Our aim is to evaluate three delays model in maternal death cases of 2014 to understand the gaps.*

MATERIAL AND METHODS: *In the present study, case files of all pregnancy-associated deaths recorded in Turkey in 2014 were reviewed. A death was classified as preventable by consensus of the expert committee. An event was considered preventable if one of the three delays was reported: Phase 1 delay; delay in deciding to seek appropriate medical help for an obstetric emergency, phase 2 delay; delay in reaching an appropriate health facility, phase 3 delay; delay in receiving adequate emergency obstetric care when a facility is reached. Data on maternal age, parity, cause of death and preventability were recorded.*

RESULTS: *In Turkey, a total of 213 maternal deaths were recorded in 2014 which gives a maternal mortality rate of 15.2 per 100 000 live births. Delay in deciding to seek appropriate medical help for an obstetric emergency was noted in 56 cases (26 %). Delay in reaching an appropriate health facility only appeared to be significant in one (0.5 %). Delay in receiving adequate emergency obstetric care was observed in the deaths of 30 (14 %) women. Multiple delays were a factor in four (1.8 %) cases.*

CONCLUSION: *Over 40 % of maternal deaths in Turkey are preventable. Widespread adoption of clinical guidelines by the obstetric profession and careful attention to the delays may help to reduce maternal mortality rate favorably in future years.*

Keywords: *Maternal mortality, Turkey, three delays model*

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ÖZ

AMAÇ: Türkiye'de maternal mortalite oranlarını düşürmek amacıyla son dönemlerde çalışmalar artmıştır. Çalışmanın amacı 2014 yılı Türkiye anne ölümlerini üç gecikme modeline göre değerlendirmektir.

GEREÇ VE YÖNTEMLER: Bu çalışmada 2014 yılında Türkiye'de gerçekleşen gebelikle ilgili tüm anne ölümlerinin dosyaları retrospektif olarak incelendi. Anne ölümünün önlenabilir olup olmadığı uzman bir komisyon tarafından değerlendirildi. Anne ölümü üç gecikme modelinden herhangi biri mevcutsa önlenabilir olarak kabul edildi: Faz 1 gecikme; obstetrik acil durum için tıbbi destek aramama, faz 2 gecikme; uygun bir sağlık kuruluşuna ulaşmada gecikme, faz 3 gecikme; uygun acil obstetrik bakım alamama olarak tanımlandı. Maternal yaş, parite, ölüm nedeni ve önlenabilirlik durumu kaydedildi.

BULGULAR: 2014 yılında Türkiye'de 213 anne ölümü gerçekleşti, maternal mortalite oranı 100000 canlı doğumda 15.2 olarak hesaplandı. Elli altı olgunun (% 26) obstetrik acil durum için tıbbi destek aramadığı saptandı. Bir olgunun (% 0.5) uygun bir sağlık kuruluşuna ulaşamadığı görüldü. Otuz olgunun (% 14) uygun acil obstetrik bakım alamadığı tespit edildi.

SONUÇ: Türkiye'de anne ölümlerinin % 40'ının önlenabilir olduğu görülmüştür. Klinik kılavuzların yaygın kullanımı ve üç gecikme modellerinin üzerinde durulması anne ölüm oranlarını gelecek yıllarda azaltacaktır.

Anahtar Kelimeler: Anne ölümü, Türkiye, üç gecikme modeli

INTRODUCTION

Worldwide the annual number of maternal deaths declined by 34 % between 1990 and 2008, from approximately 546,000 to 358,000 deaths (1). The Maternal Mortality Ratio (MMR) of Turkey in 2007-2009 periods was 19.7 per 100,000 live births (2). In order to reduce maternal mortality in Turkey, efforts have gathered momentum recently. Thaddeus and Maine defined "Three Delays Model" as operational factors contributing to maternal death (3). Using the three phases of delay as a structural frame, the qualitative data for evidence related to problem identification, transportation challenges and delays after reaching the referral site can be evaluated (4).

Our aim is to examine three delays model in maternal death cases of 2014 to understand the gaps in Turkey.

MATERIALS AND METHODS

In the present study, case files of all pregnancy-associated deaths recorded in Turkey in 2014 were reviewed. Turkish Statistical Institute (TURKSTAT) collects number of deaths and causes of death statistics by the vital registration (VR) system since 2009 in details of (International Classi-

fication of Diseases 10) ICD-10 codes. All maternal deaths are then reported and evaluated in the Preliminary Investigation Committee for Maternal Deaths at the Ministry of Health of Turkey.

WHO, International Classification of Diseases 10 (ICD-10) manual was used for the definitions (WHO, 1993) (5). Under ICD-10, maternal death is defined as the death of a woman while pregnant or within 42 days of termination of the pregnancy, irrespective of the duration and site of the pregnancy and of any cause related to, or aggravated by, the pregnancy or its management, with the exception of accidental or incidental causes.

A death was classified as preventable by consensus of the expert committee. An event was considered preventable if one of the three delays was reported: Phase 1 delay; delay in deciding to seek appropriate medical help for an obstetric emergency, phase 2 delay; delay in reaching an appropriate health facility, phase 3 delay; delay in receiving adequate emergency obstetric care when a facility is reached. Data on maternal age, parity, cause of death and preventability were recorded.

RESULTS

In Turkey, a total of 213 maternal deaths were recorded in 2014 which gives a maternal mortality ratio of 15.2 per 100 000 live births. Cardiovascular system disorders were the leading cause of maternal death (Figure 1). Mean maternal age at maternal death was 31.7 ± 6.5 years (Median: 31; Minimum: 17 - maximum 49). Median parity was 1 (0-14). Delay in deciding to seek appropriate medical help for an obstetric emergency was noted in 56 cases (26 %). Delay in reaching an appropriate health facility only appeared to be significant in one (0.4 %). Delay in receiving adequate emergency obstetric care was observed in the deaths of 30 (14 %) women. Multiple delays were a factor in four (1.8 %) cases (Figure 2).

Figure 1: Causes of maternal death in 2014 in Turkey

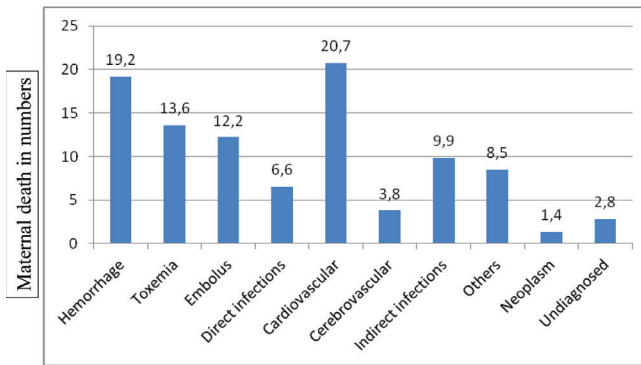
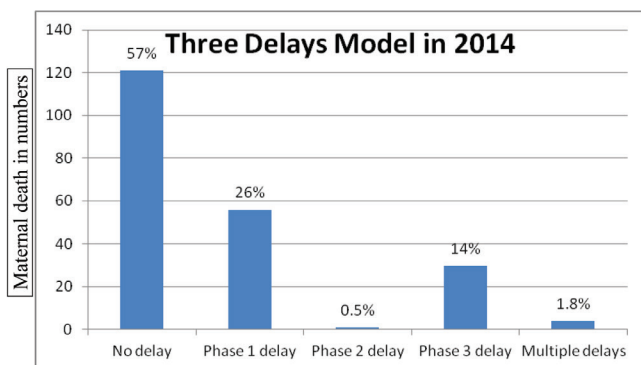


Figure 2: Three delays model in 2014 in Turkey



The reasons for phase three delay were as follows: delay in postpartum hemorrhage management, failure to consider thromboprophylaxis with low molecular weight heparin for high risk patients for venous thromboembolism, in-

adequate dose arrangement of low molecular weight heparin treatment in patients with mitral and aortic valve replacement, failure of prompt recognition and treatment of hypertensive crisis and H1N1 infections.

DISCUSSION

The third delay gathers in organization, quality of care, and availability of staff and equipment. In the systematic review of Knight et al (6), some studies revealed phase 3 delays to contribute significantly more to maternal mortality than both phase 1 and 2 delays. In the present study, phase 1 delays were the leading. Cavallaro et al revealed three important barriers to providing timely care as shortage of treatment materials, surgery facilities and qualified staff (7).

Over 40 % of maternal deaths in Turkey are preventable. Delay in receiving adequate emergency obstetric care was observed in the deaths of 30 (14 %) women in 2014 in Turkey. Failure of prompt recognition and treatment of hypertensive crisis was one of the reasons for phase 3 delay. Intracranial hemorrhage is an important cause of death in women with hypertensive disorders of pregnancy which reveals a failure of effective treatment of systolic hypertension. Maybe these cases would have a better prognosis if a clear guideline was adopted for the management. We recommend all maternity units should have standardized clinical protocol for the management of severe preeclampsia. Knight et al (6) found inadequate training/skills (86%); drug procurement/logistics problems (65%); staff shortages (60%); lack of equipment (51%) and low staff motivation (44%) as the most commonly cited barriers. In Turkey in 2014, failure to consider thromboprophylaxis with low molecular weight heparin for high risk patients for venous thromboembolism, inadequate dose arrangement of low molecular weight heparin treatment in patients with mitral and aortic valve replacement were noted. It is recommended that pregnant woman with cardiac disease should be considered for thromboprophylaxis. We also strongly suggest that any pregnant women with cardiac disease should be consulted with an expert and assessed appropriately for thromboprophylaxis.

Having just and adequate ideas about why women die can be improved by using the three delays model. In the pre-

sent study, based on three delays model, we can say that widespread adoption of clinical guidelines by the obstetric profession and careful attention to the delays may help reduce maternal mortality rate favorably in future years.

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