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SCIENTIFIC ARTICLE

Assessment of the perioperative period in civilians injured in the Syrian Civil War

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KEYWORDS
Syrian Civil War;
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Abstract
Background: wars and its challenges have historically afflicted humanity. In Syria, severe injuries occurred due to firearms and explosives used in the war between government forces and civilians for a period of over 2 years.
Materials and methods: the study included 364 cases, who were admitted to Mustafa Kemal University Hospital, Medicine School (Hatay, Turkey), and underwent surgery. Survivors and non-survivors were compared regarding injury site, injury type and number of transfusions given. The mortality rate found in this study was also compared to those reported in other civil wars.
Results: the mean age was 29 (3–68) years. Major sites of injury included extremities (56.0%), head (20.1%), abdomen (16.2%), vascular structures (4.4%) and thorax (3.3%). Injury types included firearm injury (64.4%), blast injury (34.4%) and miscellaneous injuries (1.2%). Survival rate was 89.6% while mortality rate was 10.4%. A significant difference was observed between mortality rates in this study and those reported for the Bosnia and Lebanon civil wars; and the difference became extremely prominent when compared to mortality rates reported for Vietnam and Afghanistan civil wars.
Conclusion: among injuries related to war, the highest rate of mortality was observed in head–neck, abdomen and vascular injuries. We believe that the higher mortality rate in the Syrian Civil War, compared to the Bosnia, Vietnam, Lebanon and Afghanistan wars, is due to seeing civilians as a direct target during war.

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PALAVRAS-CHAVE
Guerra Civil Síria;
Período
pós-operatório;
Lesões de guerra

Avaliação do período perioperatório em civis feridos na Guerra Civil Síria

Resumo
Justificativa: Historicamente, as guerras e seus desafios afligem a humanidade. Na Síria, lesões graves ocorreram devido às armas de fogo e explosivos usados na guerra entre as forças governamentais e civis durante um período de mais de dois anos.
Métodos: O estudo incluiu 364 pacientes, admitidos no Hospital da Universidade Mustafa Kemal da Faculdade de Medicina (Hatay, Turquia) e submetidos à cirurgia. Os sobreviventes e não sobreviventes foram comparados quanto ao local e tipo da lesão e número de transfusões administradas. A taxa de mortalidade encontrada neste estudo também foi comparada àquelas relatadas em outras guerras civis.
Resultados: A média de idade foi de 29 (3-68) anos. Os principais locais de lesão incluíram extremidades (56,0%), cabeça (20,1%), abdome (16,2%), estruturas vasculares (4,4%) e tórax (3,3%). Os tipos de lesões incluíram ferimento de arma de fogo (64,4%), lesão causada por explosão (34,4%) e ferimentos diversos (1,2%). A taxa de sobrevivência foi de 89,6%, enquanto a taxa de mortalidade foi de 10,4%. Observou-se uma diferença significativa entre as taxas de mortalidade neste estudo e aquelas relatadas para as guerras civis da Bósnia e Líbano; e a diferença ficou extremamente significativa quando comparada com as taxas de mortalidade relatadas para as guerras civis do Vietnã e do Afeganistão.
Conclusão: Dentre as lesões relacionadas à guerra, a maior taxa de mortalidade foi observada em lesões de cabeça-pescoço, abdome e vasculares. Acreditamos que a maior taxa de mortalidade na Guerra Civil da Síria, em comparação com as guerras da Bósnia, Vietnã, Líbano Afeganistão, se deva ao fato de os civis terem sido vistos como alvo direto durante a guerra.

Introduction

Wars and its challenges have historically afflicted humanity and continue to do so today.[1] War trauma is the most important risk for public health. During wars, several life-threatening injuries occur to military personnel and civilians. However, during war the majority of people injured or dead are civilians[2,3]; unfortunately, civilians comprise over 80% of injured individuals during armed conflicts.[4]

In the past, deaths were due to secondary effects of war (lack of sheltering, hunger, infections), while today, increased mortality and morbidity of civilians are directly related to war itself.[5] The reason for this is that civilians are sometimes seen as direct targets during war. The type of armed conflict on the battle field also affects the type of injury sustained. Today, modern weapons cause severe injuries. The majority of patients are therefore those injured by firearms and explosives.[5–8]

In Syria, severe injuries occurred due to firearms and explosives used in the war between government forces and civilians for a period of over 2 years. Although patients injured by firearms and explosives are transferred to regional trauma centers immediately after being found, the most common cause of death is coagulopathy and shock resulting from severe blood loss.[9] As rapid fluid resuscitation is performed, hypothermia and acidosis develop in these patients. In addition, dilutional coagulopathy is inevitable due to the use of crystalloids and plasma-poor blood products during replacement.[10,11]

The major site of an injury is an important factor that affects survival. In addition to the major site of an injury, injury mechanism also influences survival.[12,13]

Civil war in the neighboring nation of Syria, has affected the healthcare sector as well as the economy, lack of sheltering and food sectors in Turkey. As in all hospital around the border, there is also a marked increase in the number of severely injured patients presenting to our hospital. Aim of this study is the effect on mortality of injury sites and types, also review of perioperative period in patients injured during the Syrian Civil War.

Materials and methods

The present study was approved by the Ethics Committee of Mustafa Kemal University (Ethic Committee Approval Date: 20.02.2013; Approval#: 24; Chairman: Selim Turhanoğlu). The study included 364 cases, which were admitted to Mustafa Kemal University Hospital, Medicine School (Hatay, Turkey), and underwent surgery. Data were retrospectively obtained by reviewing electronic records and patient files for the previous 6 months. In all patients, data regarding age, gender, injury type (firearm, blast, burn, penetrating, etc.) and sites (head–neck, thorax, abdomen, extremity and vascular) were extracted. Also, vital signs at presentation (HR, systolic and diastolic artery pressures, SpO_2) and Glasgow Coma Scale were recorded. In addition, data regarding the number of transfusions (packed red blood cells, fresh frozen plasma, whole blood) given during the hospital stay, and the anesthetic technique (general or regional) used during intraoperative period, were identified. Moreover, the duration of operations performed, complete blood count evaluations during pre-operative and post-operative periods and mortality rate were assessed. Survivors and non-survivors were compared regarding injury site, injury type and number of transfusions given. The mortality rate found