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Bu yayının herhangi bir kısmı INTERNATIONAL JOURNAL OF HEALTH SCIENCES OF NORTHERN LIGHTS Editörlüğü'nün yazılı izni olmadıkça kaynak gösterilmeden yayınlanamaz, bilgi saklama sistemine alınamaz veya elektronik, mekanik vb sistemlerle çoğaltılamaz.

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EDİTÖRE MEKTUP

LETTER TO EDITOR

TYPE 1 NEUROFIBROMATOSIS AND ANESTHESIA

Ayşegül Bilge, MD¹

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ABSTRACT

Type 1 Neurofibromatosis is a genetic disease that can vary in severity and affect different parts of the body, so anesthetists need to take this into account. Due to the various system involvements such as respiratory, central/peripheral nerve, musculoskeletal, cardiovascular, genitourinary, and gastrointestinal systems that Type- 1 neurofibromatosis may cause, anesthesia management should be carefully planned, and complications should be anticipated.

Therefore, a detailed preoperative examination is necessary.

Keywords: *Neurofibromatosis, Spinal cord, Tumor.*

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Dear Editor,

We read your article named 'A Case of Type 1 Neurofibromatosis with Corpus Callosum Agenesis' and we think that its contribution to the literature is important (1). Neurofibromatosis is a common genetic disease with varying severity and systemic involvement, which is important for anesthetists to consider. The anesthetic approach for patients with neurofibromatosis type 1 varies based on the severity of systemic effects (2). In about 5% of these patients, neurofibromas can be found in the oropharynx and larynx, leading to potential difficulties with laryngoscopy and tracheal intubation (3).

Patients with a history of dysphagia, dysarthria, stridor, or voice changes may experience airway problems. If suspected, nasopharynx laryngoscopy and CT or MRI imaging are required. If there is a suspicion of a potential medical condition, it is recommended to use regional anesthesia techniques. In patients with multiple cervical neurofibromas, it is suggested to perform a neck radiographic examination to prevent spinal cord damage during tracheal intubation and to exclude the possibility of cervical vertebra dislocation. Cystic pulmonary disease and pulmonary fibrosis may occur in NF-1 patients presenting with symptoms such as cough and dyspnea. Thoracic spine curvatures are common in approximately 10% of patients, and lung function may be reduced due to scoliosis/kyphosis (4).

It may be difficult to do neuraxial anesthesia on patients with spinal cord tumors and vertebral deformities. Mediastinal tumors can also obstruct the superior vena cava. Chest X-rays, thoracic CT scans, and respiratory function tests are necessary to assess respiratory function before surgery. Hypertension is the most common cardiovascular presentation of NF. It may also affect the vascular system and myocardium (hypertrophic CMP) (5). Patients with neurofibromatosis (NF) require careful anesthetic evaluation due to the increased incidence of epilepsy and the possibility of undiagnosed central nervous system (CNS) tumors. In cases of genitourinary system involvement, retroperitoneal neurofibromas may cause ureter obstruction, hydronephrosis, or bladder outlet obstruction, and bladder catheterization may be difficult.

While various studies indicate that NF1 patients may experience heightened sensitivity to neuromuscular blocking drugs (2,6,7), a comprehensive retrospective study that incorporated neuromuscular monitoring did not observe any abnormal responses (7). However, when neuromuscular blocking drugs are used in patients with neurofibromatosis, neuromuscular conduction must be monitored.

NF-1 disease symptoms are generally mild, but anesthesia management can be complicated. It is crucial to have complete information about the disease's clinical manifestations. Therefore, a systematic approach to the preoperative evaluation of these patients can help in rational perioperative management.

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EDİTÖRE MEKTUP

LETTER TO EDITOR

ANESTHESIA MANAGEMENT IN HYDATID CYST SURGERY

Ayşegül Bilge, MD¹

¹University of Karamanoğlu Mehmet Bey, Department of Anesthesiology and Reanimation, Karaman, Turkey

ABSTRACT

Hydatid cyst is a parasitic disease transmitted through dog feces, caused by Echinococcus granulosus in countries with agriculture and animal husbandry. Proper anesthesia management is critical to minimize the risk of anaphylaxis during surgery for hydatid disease. To minimize the risk, the anesthetist should administer appropriate prophylactic medications and closely monitor the patient for any suspicious symptoms, such as hemodynamic instability.

Keywords: Anaphylaxis, Bronchospasm, Hydatid cyst

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Dear Editor,

We read the study titled 'New Diagnosis of Hepatic Hydatid Cyst Presenting with Dyspnea' and found its contribution to the literature important (1). Given the specific characteristics of hydatid disease and its requirement for surgical intervention, proper anesthesia management and approach during the perioperative period become crucial factors in minimizing the risk of anaphylaxis. Although the frequency of intraoperative anaphylactic reactions is rare (1/6,000 – 1/20,000), the mortality rate is between 3-6% (2). The incidence of intraoperative anaphylaxis caused by hydatid cysts is reported to be between 2% and 3.3%, which is a significant concern for anesthesiologists (3).

During cyst excision in the perioperative period, symptoms may vary from mild allergic reactions to anaphylactic shock. Prophylactic application of steroids and H1 receptor blockers at the beginning of surgery prevents mediator release from basophils and stabilizes mast cells (4). Corticosteroids can prevent recurrence of anaphylactic reaction symptoms and reduce life-threatening airway edema (5).

Anaphylactic reactions during anesthesia may manifest themselves through various symptoms, including hypotension caused by hemodynamic instability, sudden decline in peripheral oxygen saturation due to bronchospasm, and the development of urticaria (6).

The development of an Ig E-mediated anaphylactic reaction is triggered by the high antigenic content present in the cyst fluid upon its entry into the systemic circulation. In order to achieve the desired therapeutic outcome, it is essential to ensure optimal levels of vascular tone, intravascular volume, and cardiac output. Therefore, the primary objective of treatment is to maintain and monitor these physiological parameters, thereby promoting overall vascular stability and homeostasis (7).

The prompt initiation of early aggressive treatment is of utmost significance. It is recommended to elevate the oxygen level to 100% and to promptly administer intravenous colloid or crystalloid fluids, adrenaline, and steroids. This approach can potentially avert unfavorable outcomes and ensure optimal patient outcomes (7).

Adrenaline is the most appropriate drug for treating bronchospasm and massive peripheral vasodilation. Depending on the severity of the reaction, long-term infusion may be required (8).

Extubation should not be performed immediately in a patient with an intraoperative anaphylactoid reaction as inflammation continues and airway edema occurs (9). As such, it is essential to closely monitor the patient in the intensive care unit during the postoperative period. In the context of hydatid cyst surgery, an anaphylactic reaction should be considered a possibility. To mitigate the risk, the anesthetist should administer appropriate prophylactic medications and monitor the patient closely for any signs of suspicious symptoms, such as hemodynamic instability, which should prompt urgent and aggressive treatment.

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DERLEME

REVIEW

DRONE USE IN EMERGENCY MEDICINE

Hatice Şeyma Akça, MD¹

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ABSTRACT

Drone applications can be operational, strategic or tactical. It can remove people from risky areas in terms of crisis management in natural disasters and earthquakes, and also reach those waiting to be rescued.

Delivery drones carrying relief supplies; monitoring drones monitoring areas to reach injured or victims; map drones that allow us to hold the location of the region. Essentially, the coordination that starts with map drones continues with data collection and data transmission.

In addition to effective and rapid treatment in disasters, the use of drones for medical purposes is advantageous in terms of preventing the development of complications in injured people, but regulations are needed.

Keywords: medical drones, rapid treatment

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Drones

Drones, which have entered our lives recently, have many uses. It is sometimes used in cargo delivery, sometimes in agriculture, and sometimes to ensure coordination in traffic. Drones can perform many tasks in difficult terrain. Since their energy is limited, they must be optimized and used.

Meteorological conditions, tall buildings affect the operation and battery consumption of drones. Obstacles can cause communication interruption and packet loss. Energy is undoubtedly needed not only for flying, but also for drones to perform their mission. Drones have tasks such as transporting injured victims who are located along with communication (1-4).

Work was carried out on 'Multi-drone organization' to prevent mishaps that may occur with a single drone and to organize the network connection (5). There are different methods and different algorithms. Greedy Geographic Forwarding (GGF) and Greedy Perimeter Stateless Routing (GPSR) determine location. There are methods such as the Store-Carry-Forward (SCF) method. The SPIDER algorithm is presented as a field built on recent advances in geographic routing. The SPIDER algorithm is suitable for high-density drones. In the Heuristic Greedy Packet Forwarding (HGPF) Algorithm, drone position is used. Integrated RL-based Packet Forwarding (IRLPF) Algorithm: According to a study, it consumes less energy than HGPF and has a more optimum distribution compared to DRM (Disaster response management) (6).

For drones, the term Remotely Piloted plane structures (RPAS) is used in Europe. The term UAV (Unmanned Aerial vehicle) is also used. The unmanned aerial vehicle (UAV) was invented for the first time in 1849 and was developed to take its current form. Medical drones began to be used in America for the first time in 2016 with the permission of the FAA (Federal Aviation Administration) (7,8). Drone instrumentalized ambulance (ODIA) is the integration of three components such as live-stream first-aid box, webcam, and global positioning system (GPS) unit (9).

Drone applications can be operational, strategic or tactical. It can remove people from risky areas in terms of crisis management in natural disasters and earthquakes, and also reach those waiting to be rescued (10). In explosions or accidents that release dangerous gases or liquids, the drone determines the direction of spread of these toxic substances. Drones can be optimized for rapid mapping, damaged building detection and human rescue during earthquakes.

Drones can be optimized for the control of dams and the flow direction of possible floods in floods, but since it covers a large area, operational or tactical drones should be preferred for flood monitoring and control. Management of forest fires is quite difficult, visibility may be limited. However, drones are preferred because they are low cost compared to manned aircraft (11).

We know that climate conditions have changed in recent years. Drones can be used for guidance in natural disasters and can also be integrated into emergency and disaster response protocols. In this way, medical aid supplies can be delivered to many people and effective intervention can be provided. As we know, the disaster relief life cycle is divided into 4: prevention, preparation, response, recovery. In the search and rescue study conducted with drones, it was determined that the

search area of the drones was statistically significantly larger than the search team. In this study, the drone height was 60 meters (12).

According to information in 2016, there is no economic project on how to place the drone in the disaster area. Different drone methods have also been developed regarding time, route and geographical location of the disaster area. Similarly, medical aid was delivered to floods and earthquakes in Nepal and Haiti (13-15).

In addition to allowing drones to detect images in the disaster area and guide rescuers, a heat detection sensor was also developed to reach people. Thus, progress has been made in telemedicine and public health. Using drones is less costly but can sometimes cause failure at low altitude. There are also fewer permit requirements for helicopters and aircraft. In addition to transportation to disaster areas, innovations have emerged regarding the use of drones in emergency treatments. Transport of food, medical aid equipment, and medicines such as insulin was ensured.

The use of drones in no-fly zones has not yet been investigated. International agreements are needed. As of this year, we do not have any systematic and sufficient evidence regarding the use of drones in disasters. There has been an increase in publications about the use of drones in the last 10 years. Undoubtedly, advances in the field of engineering and the need to reach people waiting to be rescued faster are the reasons for this interest (16,17).

Using Drones in Emergency Medicine

While responding to emergency calls is 9 minutes in urban areas in America; This time can increase to 15 minutes in rural areas (18). In a simulation study conducted with parachute drones, a 92% successful landing rate was recorded for medical drones. (The first study) (19). Drone speed 20-100 mph. Range: 1000 miles (20). For organ transplantation, 14 drones flew at a distance of 1.5-3 miles, and the pathologist noted that there was no damage to the organs after the flight (21).

Studies were conducted in Switzerland and Canada comparing the arrival times of drones with the arrival times of ambulances, and it was concluded that drones reach patients in a shorter time than ambulances (22,23). It has also been proven to be safe in transporting blood products. It has been found that blood transfusion saves time even in cities (24).

It has been determined in studies that the transportation of epinephrine, antiepileptics, naloxone, insulin, salbutamol and lasix is also feasible by drone (25-27). Approximately 4 times more survival was detected in out-of-hospital cardiac arrest cases with shorter defibrillation time (28). In a study on drone networks, it was found that the chance of survival and neurological recovery in patients needing defibrillation increased with the use of drones for medical assistance and the cost was lower than expected, but trained and untrained rescuers were not evaluated separately. In this study, thanks to a network of 500 drones, the time for defibrillation to reach the patient was shortened approximately 3 times. Survival rate doubled (29). In a study conducted in Stockholm, it was determined that the use of drones for early defibrillation in more than 3000 out-of-hospital cardiac arrest cases arrived at the scene in a shorter time than an ambulance (30). Similar results were obtained in a study conducted in Canada (22). Drones were also used to deliver Covid vaccines, examine compliance with quarantine rules, and examine vital signs (31).

Drones for medical assistance:

Delivery drones carrying relief supplies; monitoring drones monitoring areas to reach injured or victims; map drones that allow us to hold the location of the region. Essentially, the coordination that starts with map drones continues with data collection and data transmission. In case of loss of a drone, spare drones are used to locate the lost drone (5).

Challenges of using drones in Emergency Medicine

- flight permit
- Flight time
- Emergency landing procedures
- Cost
- Care
- Security
- Internet restriction
- Limited availability of blood products
- Inability to travel long distances

Another uncertainty we have about medical drones is how to obtain patient permission. Unfortunately, this issue is still controversial. While some studies suggest that public perception is that drones will be misused; Some studies have shown that cardiac arrest is more easily intervened in the presence of a drone with an automatic external defibrillator (32). In drone-related studies, meteorological parameters such as humidity and temperature and factors such as limited field of view are generally absent. Therefore, additional studies are needed (33).

Erythrocyte suspension and fresh frozen plasma were sent from one place to another for 26.5 minutes with the help of a drone, and it was observed that there was no change in PH and blood hemogram parameters. Drones containing medical kits and medicines have also been developed. Extensive drone research has been done to develop blood transfusion tools (34-37).

In addition to effective and rapid treatment in disasters, the use of drones for medical purposes is advantageous in terms of preventing the development of complications in injured people, but regulations are needed. Medical drones used in Switzerland can travel a maximum distance of 20km and carry a load of up to 2kg (38-39).

Some sources mention the existence of medical drones that can carry payloads of up to 4 kg. When designing a drone system, take-off altitude, landing altitude, acceleration and weather conditions are taken into account. 50 meters more than the coverage area radius is the safe flight altitude. Ambulances have many more functions than drones. We cannot say that drones are always superior to ambulances in terms of cost and time, except in life-threatening situations where early intervention is required (40). Community-acquired pneumonia (CAP) typically defines the type of

pneumonia acquired by patients in their homes or within the community. This condition arises as a result of an infection in the respiratory tract, often caused by various pathogens such as bacteria, viruses, or fungi (1-4). Community-acquired pneumonia is generally associated with the following symptoms, fever (an increase in body temperature), cough (particularly with or without sputum), shortness of breath (a sensation of difficulty breathing during respiration), chest pain (discomfort or pain in the chest region).

CAP is often treatable in healthy individuals. However, it can be more severe, especially in the elderly, those with weakened immune systems, or individuals with underlying health problems (1-4). Treatment typically involves antibiotics, antiviral drugs, or antifungal medications, depending on the specific type of pathogen causing the infection. Early diagnosis and appropriate treatment can often help prevent complications (5-7).

Scoring systems used for hospitalization of CAP patients are employed to assess the severity of the patient and determine appropriate treatment strategies (8-11). Here are some commonly used scoring systems for CAP patients:

Pneumonia Severity Index (PSI): PSI is a scoring system that assesses the severity of CAP. It includes various clinical and demographic factors such as the patient's age, comorbidities, vital signs, and laboratory findings.

CURB-65 Score: This scoring system uses the criteria of Confusion, Urea (>20 mg/dL), Respiratory Rate (≥ 30 breaths per minute), Blood Pressure ($<90/60$ mmHg), and age (≥ 65). Each criterion presence receives a score, and the total score determines the severity.

CRB-65 Score: Similar to CURB-65, this system includes altered Mental Status instead of Urea and assesses Confusion, Respiratory Rate, Blood Pressure, and age.

SMART-COP Score: This scoring system is based on criteria such as Systolic Blood Pressure (<90 mmHg), Multilobar Infiltrates, Altered Mental Status, Respiratory Rate (≥ 30), Tachycardia, and CO₂ (Partial pressure of carbon dioxide <30 mmHg).

These scoring systems are commonly used in clinical practice to assess the patient's condition and determine severity. However, each patient should be individually evaluated, and the treatment plan should be customized based on their clinical condition (12,13). Similarly, laboratory parameters can be used in clinical decision making.

C-reactive protein (CRP) is a type of protein produced by the liver, and its levels increase in the body in response to inflammation or infection. CRP is considered an inflammatory marker, reflecting inflammatory processes occurring in the body (14-16). In the context of CAP, CRP levels can aid in assessing the severity of the disease and monitoring the response to treatment. CRP is regarded as an indicator of inflammation and is associated with conditions such as infections, inflammatory diseases, or tissue damage (1,17,18). The relationship between mortality and CRP levels is complex, as various factors can influence this relationship. However, in general, elevated CRP levels are often associated with more severe and advanced inflammatory conditions. This is important in evaluating the overall health status of the patient and their response to treatment.

Lactate is the ionized form of lactic acid, a salt of lactic acid produced in the body. Lactic acid is an acid formed during the process of anaerobic glycolysis, which is an energy production process from glucose without the use of oxygen. During this process, glucose is converted into lactic acid, resulting in the formation of lactate (19). Lactate levels in the bloodstream are generally low, but specific conditions or diseases, especially situations where tissue oxygenation is decreased, can lead to an increase in lactate levels. Elevated lactate levels can indicate inadequate tissue perfusion and metabolic disturbances (20,21).

In CAP patients, the relationship between lactate levels and mortality is often associated with the patient's clinical condition and overall health. Elevated lactate levels may suggest that the patient has developed severe complications, such as severe infection or septic shock. Various studies have shown that high lactate levels are associated with poor prognosis and high mortality, especially in severe infections and sepsis conditions (22). However, this relationship is not specific to CAP patients and is generally associated with infections (1,23). In CAP patients, an increase in lactate levels may suggest that the patient has developed severe complications. In this case, lactate levels can play a significant role in the clinical assessment of the patient and determining the treatment plan (24,25). However, specific and comprehensive studies are needed to establish a lactate level-mortality relationship specifically for CAP.

Neutrophil-to-lymphocyte ratio (NLR) is a hematological parameter that expresses the ratio between the number of neutrophils and lymphocytes measured during a blood test. This ratio provides information about inflammatory conditions and the immune system's response. NLR is often used as an indicator of an inflammatory or immune response (26,27). Neutrophils and lymphocytes are essential components of the immune system, both being types of white blood cells (leukocytes). Neutrophils are typically associated with acute infections, while lymphocytes are generally associated with chronic infections and immune system responses (28,29). The relationship between the NLR and mortality in CAP patients has been examined in various studies (5,30,31). However, this relationship cannot be accepted as an exact and general rule due to the complexity of this interaction, and several factors can influence it.

Some studies have suggested that a high NLR may be associated with poor prognosis in CAP patients. However, due to the complexity of such relationships, it is not recommended to use NLR alone as a mortality prediction tool. It should be evaluated along with other clinical and laboratory parameters for a more accurate assessment (30,31). The patient's overall condition, comorbidities, age, gender, and other factors should also be taken into account.

As a conclusion the combined use of biomarkers and scoring systems can contribute to a more effective and personalized approach in the treatment of CAP. However, each patient is unique, and treatment plans should be tailored to individual characteristics and clinical conditions. Future research should focus on optimizing the use of these indicators and gaining a better understanding of their role in the management of CAP.

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ARAŞTIRMA MAKALESİ

RESEARCH ARTICLE

**DOES THE CRP/ALBUMIN RATIO SERVE AS A MARKER
IN THE EVALUATION OF CLINICAL COURSE IN PATI-
ENTS COMING TO THE EMERGENCY DEPARTMENT
WITH ISCHEMIC CEREBROVASCULAR DISEASE?**

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ABSTRACT

Our aim in this study is to seek an answer to the question of whether the CRP/Albumin ratio can be a reliable indicator of the clinical course in patients presenting to emergency departments with ischemic cerebrovascular disease. Method: This is a retrospective study and included patients over the age of 18 who came to the emergency department with ischemic cerebrovascular disease between 01 June 2021 and 01 December 2021. The study was conducted on routine blood samples taken from patients. At the end of the analysis, the average age of the patients was 72.8±12.9 (min: 25-max: 97). 54% (n=32) of the patients had comorbidities. CRP and CRP/ALB ratios of the patients were found to be significantly higher in the mortal group than in the healthy group (<.05). As a result, we think that early CRP levels and CRP/Albumin ratio may help predict the in-hospital mortality of these patients.

Key Words: Ischemic cerebrovascular disease, CRP/Albumin ratio, C-reactive protein (CRP)

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INTRODUCTION

Acute ischemic cerebrovascular disease (CVD) essentially refers to brain tissue necrosis caused by hypoxia and ischemia due to tissue perfusion disorder (1). CVD patients often have varying degrees of neurological findings, and permanent damage or death may occur (2). It is important to investigate serum biomarkers related to the diagnosis and prediction of CVD. C-reactive protein (CRP), the subject of our study, is an acute phase reactant triggered by interleukin-6 (IL-6) secreted in response to the first phase of the infectious or inflammatory process. serves as. CRP has both anti-inflammatory and pro-inflammatory properties. Persistent elevation of CRP is a marker of chronic inflammation and its elevation is seen in autoimmune diseases. Clinicians more often associate a high CRP value with a 90% bacterial infection (3,4). In critically ill patients, high CRP levels are considered as a poor prognosis (5).

Albumin is the most abundant protein in plasma. Some of the situations in which albumin increases are shock, dehydration, hemoconcentration, and excessive intravenous administration of concentrated albumin. Albumin is a negative acute phase reactant and appears to decrease in more severe and critically ill patients. Some of these are sepsis, postoperative or trauma, malnutrition, renal failure, burns, liver cirrhosis, chronic infections, protein-losing enteropathies and malignant diseases (6). Some animal studies have shown that it has significant neuroprotective effects in ischemic stroke models; These effects mainly manifest themselves as reducing the brain infarct volume and improving the neurological score(7).

In this study, we investigated the usability of the CRP/Albumin ratio in evaluating the clinical course of patients admitted to the emergency department due to cerebrovascular disease in the critical patient category.

MATERIAL AND METHOD

Patients aged 18 and over who applied to Karaman Training and Research Hospital Emergency Medicine Clinic between 01. 06. 2021- 01.12.2021 with suspicion of acute ischemic stroke and diagnosed with acute ischemic stroke by radiological examination were included in our study. Patients were classified as group 1, and those in the healthy group screening were classified as group 2. It was planned to record laboratory information such as age, gender, routine blood tests such as CRP and Albumin of all patients included in the study. The first CRP, white blood cell count (WBC), neutrophil and lymphocyte quantitative counts and percentages taken for evaluation as soon as they are accepted at the time of application (the highest value or first value seen during follow-up for each parameter) will be recorded as laboratory findings. All these data will be scanned retrospectively from the hospital system.

Statistical Analysis

Statistical Package for Social Sciences (SPSS Inc., version 20.0; Chicago, IL) will be used in statistical analyses. All statistical data were made with SPSS 20.0 version program for Windows.

Kolmogorov Smirnov test and skewness-kurtosis method were used to evaluate the normal distribution of all variables. In addition, the normal distribution of the data was evaluated with histogram, one of the graphical methods. Descriptive statistics were used in the demographic analysis of the patients. Numerical values in the study data were expressed as mean \pm standard deviation and minimum-maximum values. It was planned to use the significance test of the difference between two means in independent groups, Mann-Whitney-U test and Kruskal Wallis test to evaluate the data. Statistical significance level was accepted as $p < 0.05$. In the evaluation of 28-day mortality according to the clinical results of the patients, CRP and CRP/Albumin proportional parameters were evaluated with the ROC curve (Receiver-Operating Characteristics Curve).

Data Collection

Age, gender, clinical outcomes, survival and blood parameters of the patients included in the study. All laboratory data, including complete blood count (Mindray BC6800 device), serum biochemistry (Beckman Coulter AU 5800 and Beckman Coulter AU 680 devices), biochemistry, were obtained from patient files and hospital information system. were scanned and recorded retrospectively. Survival data of the patients were recorded in the hospital information system.

RESULTS

The study included 60 patients with CVD who were admitted to the emergency department and hospitalized with the diagnosis of cerebrovascular disease between 01 June and 01 December, and 45 control group patients without CVD disease. In the study, 20.3% ($n = 12$) of the patient group was planned to be treated and discharged home, 37.3% ($n = 22$) was planned to be hospitalized and 42.5% ($n = 26$) was planned to be admitted to intensive care. Demographic data and comorbidity distributions of the patients are given in Table 1. According to this; 34 of the patients were male (56%) and 26 (44%) were female. The average age of the patients was 72.8 ± 12.9 (min: 25-max: 97). 54% ($n=32$) of the patients had comorbidities. Its comorbidities are listed in Table 1.

Table 1. Demographic characteristics of cerebrovascular patients

Demographic Characteristics	Name of Characteristics	Number	Percent (%)	Mean	Sdt. Dev.
Independent Variables (IVs)	Female	26	44		
	Male	34	56		
Gender					
Age				72.8	12.9
Comorbidity		32	54		
Hypertension		26	42		
CAD		29	47.8		
Discharged home healthy		12	20.3		
Service tracking		23	37.3		
Intensive care follow-up		25	42.4		
Clinical course	Patient who died	15	24.1		
	Living patients	45	75.9		

Laboratory data of CVD patients and differences between groups

The minimum and maximum values in laboratory findings of CVO patients are shown in Table 2. Although the WBC value of the patients in Group 1 was higher than that in Group 2, there was no statistically significant difference ($p > .05$). Neutrophil, lymphocyte, CRP values and CRP/Alb ratios were found to be significantly higher in group 1 than in group 2. This difference was also found to be statistically significant ($p < .05$). However, as seen in the table, the difference in WBC value was not statistically significant in the two groups ($p \geq .05$).

Table 2. Laboratory data of CVD patients and differences between groups

Laboratory parameters	1.Group(Mean±Standard Deviation)	2. Group (Mean±Standard Deviation)	P value
WBC(4.0-10.0 × 10⁹/L)	10.2±3.2	7.5±1.5	0.166
Neutrophils (2.0-6.0× 10⁹/L)	6.9±3.8	4.6±1.2	0.002*
Lymphocyte(1.1-3.2 ×10⁹/L)	1.6±1.3	2.9±4.3	0.001*
Albumin	35.1±5.1	40.8±2.4	<0.05*
C-reactive protein(0-6 mg/L)	35.1±53.1	2.9±1.6	<0.05*
CRP/Albumin	1.3±2.1	0.07±0.04	<0.05*
As statistical analysis, Mann-Whitney U test was used. * =p<0.05 was considered significant.			

When the survival of the patient group was evaluated, 75.9% (n = 45) survived and 24.1% (n = 15) died. The minimum and maximum values of laboratory findings according to the survival of CVO patients are shown in Table 3. When the 28-day survival was evaluated, the difference in WBC, Neutrophil and Lymphocyte values of the mortal patients compared to the surviving patients was not statistically significant ($p \geq .05$). CRP and CRP/ALB ratios were found to be significantly higher in the mortal group than in the healthy group ($<.05$) (Table 3).

Table 3. 28-day survival laboratory values between groups

Laboratory parameters	Living patients(Mean±Standard Deviation)	Patient who died (Mean±Standard Deviation)	P value
WBC(4.0-10.0 × 10⁹/L)	9.6±4	8.7±4.6	0.093
Neutrophils (2.0-6.0× 10⁹/L)	7.4±4	5.9±2.6	0.88
Lymphocyte(1.1-3.2 ×10⁹/L)	1.7±1.4	1.2±0.4	0.16
C-reactive protein(0-6 mg/L)	27.3±32.4	82.4±77.6	0.001*
Albumin	35.5±5.1	33.6±6.1	0.11
CRP/Albumin	0.8±1.1	3±3.2	0.002*
As statistical analysis, Mann-Whitney U test was used. * =p<0.05 was considered significant.			

ROC analysis for CRP, CRP/Albumin parameters

In order to evaluate the 28-day survival of CVO patients, ROC curve and AUC, cut-off, sensitivity and specificity were analyzed to distinguish CRP/ALB ratios and CRP laboratory parameters to guide the clinician about the patient's condition during patient follow-up. In addition, the cut-off points, sensitivity and specificity of the mortality values of these laboratory parameters in CVD patients were analyzed with the ROC curve. Parameters with AUC <0.6 and not statistically significant ($P>0.05$) were excluded. For the CRP/ALB ratio, the AUC, cut-off, sensitivity, and specificity were 0.731, 1.03, 78%, and 73.4%, respectively. CRP parameter AUC, cut-off, sensitivity, specificity were 0.736, 29.2, 78.6% and 70%, respectively (Figure 1).

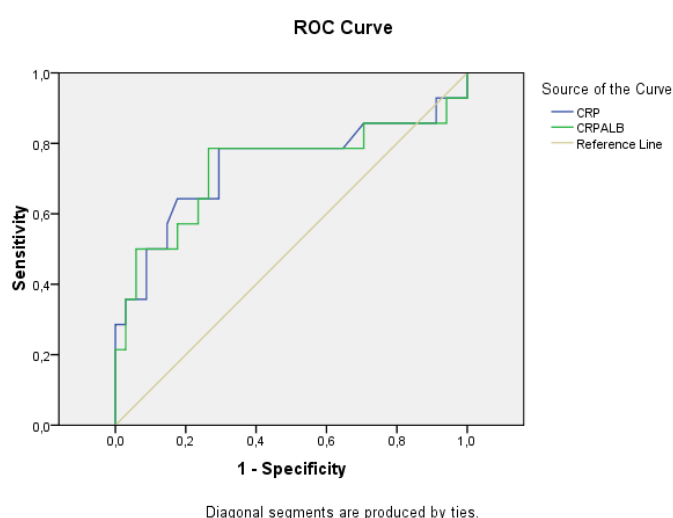


Figure 1. ROC analysis for CRP, CRP/Albumin parameters

DISCUSSION AND CONCLUSION

In this study, we aimed to investigate whether we could use the CRP/Albumin ratio as a biomarker in patients admitted to the emergency department with suspicion of acute ischemic stroke and diagnosed with acute ischemic stroke by radiological examination. Main findings: We saw that CRP and CRP/Albumin ratio were higher in group 1, which we classified as the patient group, and albumin alone was lower than the other group 2. However, within group 1, there were significant differences in Albumin, CRP and CRP/Albumin values between survivors and non-survivors. This can also tell us that the CRP/Albumin ratio may be a useful parameter in predicting mortality.

Recent studies have drawn attention to the role of inflammation in acute brain ischemia (8). CRP is an acute phase reactant synthesized by hepatocytes and regulated by proinflammatory cytokines, especially interleukin (IL)-6. CRP levels can be obtained quickly and easily compared to proinf-

lammatory cytokines, including IL-6, IL-1 β , and nucleotide-binding domain and leucine-rich repeat protein-3 (NLRP3), making CRP testing superior to proinflammatory cytokines. In addition, CRP levels were positively correlated with infarct volume compared with other laboratory tests and proinflammatory cytokines (5).

High CRP levels may cause long-term functional problems in patients with ischemic stroke. Acute local inflammation and inflammatory cytokine levels are altered in patients with ischemic brain injury due to arterial occlusion. CRP levels may reflect the extent of cerebral infarction. The risk of death and cardiovascular mortality is high in ischemic stroke patients with early CRP elevation (9).

Albumin levels may be related to nutritional status and clinical outcomes in critically ill patients. At the same time, as an inflammatory response, albumin levels may decrease due to decreased hepatic synthesis and increased vascular permeability. Similarly, in patients with intracranial hemorrhage, serum albumin may be related to the acute inflammatory response and the severity of intracranial hemorrhage(10). Albumin is the most abundant protein component in cerebrospinal fluid and plasma. C-reactive protein is a sensitive marker of acute inflammation. Infection triggers an inflammatory response such that CRP/albumin increases. In a study conducted by HF Hayati et al. in central nervous system (CNS) infections such as encephalitis, meningitis or myelitis, they stated that there was an increase in the CRP/albumin ratio and that it could be an indicator of clinical worsening in patients (11).

Although CRP and albumin alone are considered prognostic markers in various clinical settings, their combination provides more information about both the inflammatory and metabolic status of the patient (12). In recent studies, some studies have emphasized that the CRP/albumin ratio is related to the patient with coronary artery sclerosis and also the severity of the disease (13, 14). In other studies, it is thought that a high CRP/albumin ratio may be a marker of atherosclerosis in patients with atherothrombotic stroke compared to other types of stroke (15).

In this study, we evaluated the CRP/Albumin ratio from the first blood samples taken in patients who were admitted to the emergency department with suspicion of cerebrovascular accident or who were diagnosed with diffusion MRI or computed tomography by the physician working in the emergency department with the suspicion of cerebrovascular accident. In this study, we found that the CRP/albumin ratio at the time of admission was associated with acute cerebrovascular accident. Additionally, serum albumin, CRP/Albumin and CRP alone levels were significantly different between survivors and non-survivors in our study. Therefore, CRP, albumin CRP/Albumin levels may be equally helpful in predicting the prognosis of patients diagnosed with acute ischemic disease in the emergency department and making early decisions for their treatment. As a result, we think that early CRP levels and CRP/Albumin ratio may help predict the in-hospital mortality of these patients.

Disclaimer: The opinions expressed in the article belong to the authors. There is no official responsibility of any institution or financial source.

All authors declare that there is no conflict of interest regarding this manuscript.

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VAKA TAKDİMİ

CASE REPORT

NOT EVERY RENAL COLIC IS A REAL RENAL COLIC

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ABSTRACT

Renal colic presents with a transient, writhing, severe pain in the form of intermittent cramps, which is common in emergency services. In our case, we aimed to describe a case of subcapsular renal hematoma incidentally encountered in a young woman without any additional disease or trauma, who applied to the emergency department with the complaint of pain in the form of renal colic.

Case report: A 32-year-old young woman applied to the emergency service with the complaint of colic-like right flank pain that had been intermittent for 2 days. The patient, whose vital signs were stable, did not have any additional disease. We evaluated the patient with the first USG, who was not relieved by symptomatic treatment. During the examination with USG, we saw that there was a loculated collection area around the right kidney, this seemed suspicious to us in terms of a subcapsular hematoma or a septal cystic structure. Thereupon, we planned to perform a contrast-enhanced computed tomography (CT) scan. In the withdrawn CT; We observed that it is compatible with subcapsular hematoma with limited fluid density in the renal capsules in the perirenal planes on the right, and grade 2 hydronephrosis in the structures of the right kidney pelvicalyxial system. Our patient was hospitalized by the urology clinic for follow-up and treatment.

Conclusions: In our case, we wanted to share with you a case that we came across spontaneously, who was not exposed to any trauma, and was diagnosed quickly by USG. Thanks to this imaging that we applied to our patient for the first time, she was of great help in the diagnosis of subcapsular renal hematoma, which is rare. However, computed tomography was needed for definitive diagnosis.

Key Words: Renal colic, subcapsular renal hematoma, emergency medicine

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INTRODUCTION

Renal colic presents with a transient, writhing, severe pain in the form of intermittent cramps, which is common in emergency services. Classically, it is an uncomfortable condition that can be accompanied by costovertebral angle tenderness, flank pain, colic, and nausea and vomiting. Although renal colic is supported by clinical suspicion, many diagnoses can be confused with renal colic. In our case, we aimed to describe a case of subcapsular renal hematoma incidentally encountered in a young woman without any additional disease or trauma, who applied to the emergency department with the complaint of pain in the form of renal colic.

CASE REPORT

Case; A 32-year-old young woman applied to the emergency service with the complaint of colic-like right flank pain that had been intermittent for 2 days. On physical examination of the patient, right costovertebral pain sensitivity was present. no rebound-defense on abdominal examination and no ral-rhonchus in lung sounds. The patient, whose vital signs were stable, did not have any additional disease. Whole blood, biochemistry, urine and beta hcg tests were requested from the patient and symptomatic treatment was started at this time. In laboratory tests of the patient, WBC (White Blood Cell): 12.77 K/UL, HGB (Hemoglobin): 15g/dL, CRP (c-reactive protein): 4.4 mg/L, Creatinine: 0.98mg/dL, urea: 47 mg/dL, potassium: 4.56 mmol/L. WBC (White Blood Cell): 6.71 K/UL, HGB (Hemoglobin): 12.4 g/dL, CRP(c-reactive protein): 1.5 mg/L, Creatinine: 0.76 mg/dL, urea: 18.3 mg/dL, potassium: 4.56 mmol/L, beta hcg negative, and there was no significant feature in urinalysis. Mindray branded DC-60 model ultrasonography (USG) is available in the emergency department of our hospital. We evaluated the patient with the first USG, who was not relieved by symptomatic treatment. During the examination with USG, we saw that there was a loculated collection area around the right kidney, measuring approximately 85*45 mm in its widest part, and containing thin septa in places. This seemed suspicious to us in terms of a subcapsular hematoma or a septal cystic structure. Thereupon, we planned to perform a contrast-enhanced computed tomography (CT) scan after our patient had normal urea- creatinine values. In the withdrawn CT; We observed that it is compatible with subcapsular hematoma with limited fluid density in the renal capsules in the perirenal planes on the right, and grade 2 hydro-nephrosis in the structures of the right kidney pelvicalyxial system. Our patient was hospitalized by the urology clinic for follow-up and treatment.

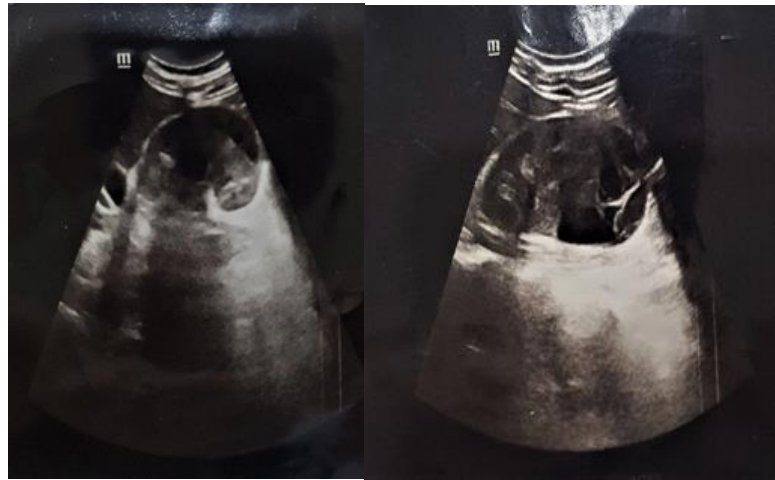


Figure 1. Ultrasound images of the patient



Figure 2. Computerized tomography images of the patient

DISCUSSION

Renal colic is pain caused by increased pressure in the urinary system or usually caused by stones(1). Although renal colic originates from urolithiasis, different etiological causes may present with pain in the style of renal colic. The most serious of these are abdominal aortic aneurysm rupture and aortic dissection(2). After these 2 life-threatening causes, similar findings may occur in various renal, ureter, bladder, gastrointestinal, and gynecological causes.

The use of USG in emergency services has increased in recent years and has become an indispensable auxiliary diagnostic tool in daily practice. USG; It acts as a modern stethoscope for today's

emergency medicine physicians with its non-invasive, rapid and no radiation risk. There is Min-drax branded DC-60 model USG in Karaman Training and Research Hospital. We routinely use this USG very frequently.

Subcapsular hematomas, which we think to occur spontaneously, are rare. We have seen that the literature on the subject is sparse. However, in a study by Shinya Somiya et al., we see cases of subcapsular hematoma occurring as a complication after transurethral ureterolithotripsy(3). Or, in a study by Michael A. Kozmonski et al., it is believed to be associated with the risk of renal hematoma after extracorporeal shock wave lithotripsy applied for kidney stones(4).

In our case, we wanted to share with you a case that we came across spontaneously, who was not exposed to any trauma, and was diagnosed quickly by USG. Thanks to this imaging that we applied to our patient for the first time, she was of great help in the diagnosis of subcapsular renal hematoma, which is rare. However, computed tomography was needed for definitive diagnosis.

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