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Hypertension Emergency

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Abstract

High blood pressure or hypertension is, in general, a symptom-free condition where abnormally high blood pressure in the arteries increases the risk of developing problems such as stroke, aneurysm, heart failure, heart attack, and kidney damage. For most people the word hypertension means excessive tension, nervousness or stress. In medicine, the term hypertension indicates the condition of high blood pressure regardless of the cause. High blood pressure is also called a "silent killer" because it usually does not cause symptoms for years until it causes damage to important organs. When measuring blood pressure, two values are recorded. The upper value represents the moment when the heart sticks (systole); while the lower value occurs during the relaxation of the heart between two stroke (diastole).

Keywords: Hypertension; Patient; Urgency

Introduction

An emergency is commonly defined as any condition perceived by the prudent layperson or someone on his or her behalf-as requiring immediate medical or surgical evaluation and treatment [1]. On the basis of this definition, the American College of Emergency Physicians states that the practice of emergency medicine has the primary mission of evaluating, managing, and providing treatment to these patients with unexpected injury and illness.So what does an emergency physician (EP) do? He or she routinely provides care and makes medical treatment decisions based on real-time evaluation of a patient's history; physical findings; and many diagnostic studies, including multiple imaging modalities, laboratory tests, and electrocardiograms. The EP needs an amalgam of skills to treat a wide variety of injuries and illnesses, ranging from the diagnosis of an upper respiratory infection or dermatologic condition to resuscitation and stabilization of the multiple trauma patient. Furthermore, these physicians must be able to practice emergency medicine on patients of all ages. It has been said that EPs are masters and mistresses of negotiation, creativity, and disposition. Clinical emergency medicine may be practiced in emergency departments (EDs), both rural and urban; urgent care clinics; and other settings such as at mass gathering incidents, through emergency medical services (EMS), and in hazardous material and bioterrorism situations.

In healthcare delivery, we attempt to meet the health and medical needs of the community by providing a place for individuals to seek preventative medicine, care for chronic medical conditions, emergency medical treatment, and rehabilitation from injury or illness [2]. While a healthcare institution serves the community, this responsibility occurs at the level of the individual. Each individual expects a thorough assessment and treatment if needed, regardless of the needs of others. This approach is different than that practiced by emergency managers, whose goal is to assist the largest number of people with the limited resources that are available. As such, emergency management principles are focused on the needs of the population rather than the individual. When either planning for a disaster or operating in a disaster response mode, the hospital should be prepared at some point to change its focus from the individual to the community it serves and to begin weighing the needs of any individual patient versus the most good for the most patients with scarce resources. Moving from the notion of doing the most for each individual to doing the best for the many is a critical shift in thinking for healthcare institutions considering a program of comprehensive emergency management. While the initial planning for emergencies by hospitals is focused on maintaining operations and handling the care needs of actual or potential increased numbers of patients and different presentations of illness or injury than is traditionally seen, there is also the need to recognize that at some point during a disaster, act of terrorism, or public health emergency there may be an imbalance of need versus available resources. At this point the approach to delivering

healthcare will need to switch from a focus on the individual to a focus on the population. This paradigm shift is one of the core unique aspects of hospital emergency management that allows the hospital to prepare to maximize resources in disasters and then to know when to switch to a pure disaster mode of utilizing its limited and often scant resources to help the most people with the greatest chance of survival.

The healthcare delivery system is vast and comprised of multiple entry points at primary care providers, clinics, urgent care centers, hospitals, rehabilitation facilities, and long-term care facilities. The point of entry for many individuals into the acute healthcare system is through the emergency department (ED). Since the late 1970s, the emergency medical services (EMS) system has allowed victims of acute illness and injury to receive initial stabilization of life-threatening medical conditions on the way to the emergency department. Among the many strengths of the ED is the ability to integrate two major components of the healthcare system: prehospital and definitive care. The emergency department maintains constant communications with the EMS system and serves as the direct point of entry for prehospital providers into the hospital or trauma center. Emergency physicians represent a critical link in this process by anticipating the resources that ill and injured patients will need upon arrival at the ED, and initiating appropriate life-saving medical care until specialty resources become available. In this context, the healthcare system is an emergency response entity.

Patient Conditions

In most emergencies there is no time to disclose the necessary information for an informed consent [3]. Here the providers simply act according to what they think will be in the best interests of the patient. These situations frequently happen in hospital emergency rooms and when emergency medical personnel arrive on the scene of an accident or sudden illness. The emergency exception to informed consent is often quite obvious, but this is not always so. It does not apply, for example, when personnel taking care of somebody in an emergency happen to know what the patient wants. In such a situation they would not do what they think is best for the patient but what they know the patient wants.

It is important to note that the emergency exception that allows physicians to do what they think is best for the patient without obtaining informed consent from the patient or proxy has one major restriction; namely, they cannot do what they think is best if it is otherwise than what they know the patient or proxy wants. Sometimes, for example, emergency department personnel might know from previous admissions that a particular patient from a local nursing home desires only palliative care. If that patient arrives by ambulance at the same emergency department, it is hard to see how it would be morally reasonable for physicians to take aggressive measures to keep the patient alive when, even though there is no time to obtain consent for orders not to attempt resuscitation or not to intubate, they know he or she or a proxy has decided not to have aggressive life-sustaining measures performed.

Patients accessing emergency care services can present with complaints that are extremely diverse, and the way doctors, nurses and paramedics elicit information from patients predominantly focusses on obtaining biomedical details [4]. In some cases, this approach is warranted, as the urgent need to identify signs and symptoms of life-threatening illness or injury is paramount.Yet, 90% of patients accessing emergency services are not critically ill or injured but seek help and advice. In addition to seeking advice, patients may also be anxious, frightened, intoxicated, misusing drugs or have unhealthy lifestyles. They may have psychosocial reaction to physical disease or vice versa-physical illness such as irritable bowel syndrome, asthma, tension headache can be triggered by psychosocial factors. The effects and interpretation of illness will trigger a different response to the individual depending on their view and experiences. All these factors will have different needs and concerns and it is important to elicit these concerns within a consultation. However, it has been found that nurses working in emergency care disregard the potential for anxiety and the need for support and reassurance in patients who are not severely ill or injured. In addition, where communication skills of junior doctors working in emergency departments have been researched, they are found to use approaches considered to be more physician/illness orientated than patient-centred. By way of similarities of patient presentations in the pre-hospital setting, this could equally be assumed for paramedic practice.

Hypertension

Hypertension is a common finding in patients presenting to the emergency department [5]. The clinical context in which this is seen can represent a broad spectrum of disease: from asymptomatic individuals incidentally noted at triage to have elevated blood pressures to critically ill patients with hypertension-induced damage to critical organs. Determining the best management approach to such patients represents a significant challenge, as well as a frequent source of controversy, to emergency medicine and critical care clinicians.

A number of questions face the practitioner, including whether or not blood pressure reduction will be helpful or harmful, how quickly and to what level the blood pressure should be reduced, and what the appropriate agent is to use for a given situation. Additionally, the presence of preexisting conditions needs to be considered when making treatment decisions, as well as the patient's baseline blood pressure. The diagnostic and therapeutic approach should not be algorithmic, guided strictly by numbers. Instead, clinicians should base their clinical decisions on a number of principles, most importantly the presence or absence of end-organ damage. Always treat the patient, not the number.

As the population ages and the emergency department continues to serve populations without access to appropriate primary care, issues regarding hypertension will become more important [6]. Emergency Physicians must be comfortable in evaluating and treating patients with conditions associated with an acute rise in blood pressure, conditions secondary to long-standing hypertension, as well as with the complications of medications used to control hypertension.The majority of hypertensive emergencies occur in previously hypertensive patients. In these patients, the ability of the body to autoregulate blood pressure is adjusted to accommodate for the chronic elevation of blood pressure. A hypertensive emergency occurs with an acute elevation in blood pressure over baseline. While the actual blood pressure is

important in the evaluation and diagnosis of these conditions, it is the presence of end-organ damage and not the actual blood pressure measurement that indicates the need for emergent lowering of blood pressure. The rate of elevation of the blood pressure may be more important in the pathogenesis of end-organ damage than the actual blood pressure.

Urgency

Most patients with hypertension are asymptomatic [7]. The diagnosis is suggested in the emergency department when vital signs are routinely checked. Hypertension is defined as a systolic blood pressure (BP) greater than 140 mm Hg or a diastolic pressure greater than 90 mm Hg. A diagnosis of hypertension is established based on the average of at least two properly measured, seated BP readings on each of two or more office visits. The importance of diagnosing an individual as hypertensive rests on the observation made in multiple studies that cardiovascular and cerebrovascular mortality and morbidity correlate directly with the degree of BP elevation over time. Studies indicate that treatment of patients with even mild hypertension (i.e., diastolic pressures between 90 and 105 mm Hg) may be quite beneficial, although some experts do not agree that there is significant benefit in treating patients with borderline hypertension. Elevated BP readings in the emergency department should be repeated and addressed appropriately.

The hypertensive urgency patient may present with a headache, and upon review of vital signs, will be noted to be extremely hypertensive [8]. However, physical exam and diagnostic studies will not reveal any signs of end-organ damage such as encephalopathy, retinal hemorrhages, congestive heart failure, myocardial infarction, or acute renal failure. Patients with hypertensive urgency may require admission to the hospital if they have multiple comorbidities or if they are at high risk for cardiovascular events. Patients require close monitoring until their blood pressure is seen to be stable orimproving. They will require close follow-up with a provider in order to evaluate for further complications of long standing hypertension or medication-induced hypotension. Medications should be titrated or added on as necessary to achieve blood pressure goals.

One potential mistake is to diagnose hypertensive urgency in headache patients who have a high blood pressure [9]. Coexistent headache and hypertension can occur for several reasons. Probably the most common is that pain and anxiety are elevating the blood pressure. A second cause is that the problem causing the headache is also causing some degree of raised intracranial pressure, and the body is raising the arterial blood pressure to preserve cerebral perfusion pressure. If hypertension is primarily causing the symptoms (the third possibility), then end organ dysfunction is occurring. Lowering the blood pressure about 25% below the peak in this situation, using rapidly acting, titratable agents, will both treat and help establish the diagnosis because the headache ought to improve dramatically. In patients with acute ischemic stroke and headache, one should be cautious about pharmacologically treating high blood pressure because it is likely that the high pressure is simply due to the brain autoregulating.

Approach

The emergency department (ED) is a challenging environment for patients, families, and medical personnel [10]. Many challenges result from our practice's principles: available at any time for any patient with any complaint. Patients who come to the ED are not familiar with us personally, yet must feel confident about our abilities to help them during their time of greatest concern. Their needs may be as straightforward as an excuse note for work or a prescription refill in the middle of the night, or as complex as an acute illness or injury, an exacerbation of a chronic condition, or a cry for help if depressed or suicidal. Even providing reassurance about a child's fever to a concerned parent is a critical function of emergency physicians (EPs).

Qualities successful EPs exhibit include intelligence, sensitivity, humility, insight, proficiency making decisions with and acting on limited information, and the ability to multi-task. Being skillful negotiators, working well with individuals having different backgrounds and ethnicities, and advocating strongly for patients at all times are essential qualities. In addition to these traits, EPs must be experts in trauma and medical resuscitation of adults and children, and in sharing news with patients and family members about the outcomes of these events. The majority of patients use the ED infrequently. Many may be experiencing this setting for the first time. Patients' lack of familiarity with this environment, fear, stress, waiting times, painful procedures, and overall discomfort often preclude them from having a positive experience. These are only some of the issues that patients contend with in the ED.

EPs confront numerous challenges when taking care of patients presenting to the ED. Perhaps the greatest challenge is the spectrum of diseases which EPs must be able to identify. Rather than having to know only the first 15 minutes of an illness, EPs must be familiar with all stages of all illnesses, often presenting in atypical fashion. In addition, time pressures inherent to providing emergency care, the lack of existing relationships with patients, unfamiliarity with their medical history, and the inability to review patients' medical records challenge EPs daily. EPs must rapidly and simultaneously evaluate, diagnose and treat multiple patients with multiple conditions, often with limited information, without confusing subtle nuances between patients. They must be insightful, anticipatory, and prepared to act and react to prevent morbidity and, when possible, mortality. Considering worse case scenarios is fundamental to EM practice. Most importantly, EPs must be comfortable providing detailed, often devastating information in a concise yet understandable manner to patients and family members who may have different cultural backgrounds.

It is indeed a privilege to be in a position to offer care to patients during what is likely to be their time of greatest need. Approaching patients sensitively, recognizing their apprehension, pain, concerns, and perhaps shame is critical to our mission. This is true no matter how trivial a patient's problem may seem. Often, patients consult with EPs to seek approval about their desire to leave a spouse, to get an opinion regarding a physician's recommendation for surgery, or to receive confirmation that they are making the right decision about a parent, child, or loved one. Serving in this capacity, without judgment, is not only appropriate but also essential.

Examination

The evaluation of the hypertensive patient involves a careful history

focused on evaluating the presence of symptoms suggestive of end-organ damage, the risk of developing subsequent end-organ damage if untreated, and any past treatment for hypertension or associated conditions [6]. Patients should also be questioned regarding foods, medicines, or the use of medications or illicit drugs which may contribute to blood pressure elevation. Physical exam begins with the proper measurement of blood pressure in multiple extremities with a proper sized blood pressure cuff. Examination should include a complete neurologic evaluation including fundoscopy to rule out retinal hemorrhages or papilledema, cardiovascular exam including evaluation of new murmurs, an S3 or S4, pulses in multiple extremities, pulmonary exam listening for findings indicative of pulmonary edema, and an abdominal exam to evaluate for bruits or aneurysms.

Emergencies

According Greenspan, Tabib and Swadron [6], hypertensive emergencies are as follows:

- Hypertensive encephalopathy
- Stroke (ischemic or hemorrhagic)
- Myocardial infarction or unstable angina
- Pulmonary edema/congestive heart failure
- Aortic dissection
- Acute renal failure
- Preeclampsia/eclampsia
- Microangiopathic hemolytic anemia
- Catecholamine excess

Responsibility of the Physicians

The aim is to provide excellence in emergency department (ED) care by cultivating the following desirable habits [11]

- Listen to the patient.
- Exclude the differential diagnoses ('rule out') and refine the possible diagnosis ('rule in') when assessing any patient, starting with potentially the most life-or limb-threatening conditions, and never trivializing.
- Seek advice and avoid getting out of depth by asking for help.
- Treat all patients with dignity and compassion.
- Make sure the patient and relatives know at all times what is happening and why, and what any apparent waits are for.
- Maintain a collective sense of teamwork, by considering all ED colleagues as equals whether medical, nursing, allied health, administrative or support services.
- Consistently make exemplary ED medical records.
- Communicate whenever possible with the general practitioner (GP).
- Know how to break bad news with empathy.
- Adopt effective risk management techniques.

The duty of care is a physician's obligation to provide treatment according to an accepted standard of care [12]. This obligation usually exists in the context of a physician- patient relationship but can extend beyond it in some circumstances. The physician-patient relationship clearly arises when a patient requests treatment and the physician agrees to provide it. However, creation of this relationship does not necessarily require mutual assent. An unconscious patient presenting to the ED is presumed to request care and the physician assessing such a patient is bound by a duty of care. The Emergency Medical Treatment and Active Labor Act (EMTALA) requires ED physicians to assess and stabilize patients coming to the ED before transferring or discharging them. Such an assessment presumably creates the requisite physician-patient relationship.

When caring for a patient, a physician is obligated to provide treatment with the knowledge, skill, and care ordinarily used by reasonably well-qualified physicians practicing in similar circumstances. In some jurisdictions, these similar circumstances include the peculiarities of the locality in which the physician practices. This locality rule was developed to protect the rural practitioner who was sometimes deemed to have less access to the amenities of urban practices or education centers. However, the locality rule is being replaced by a national standard of care in recognition of improved information exchange, ease of transportation, and the more widespread use of sophisticated equipment and technology.

Discussion

Establishing the standard of care in a given case requires the testimony of medical experts in most circumstances, unless the breach alleged is sufficiently egregious to be self-evident to the lay jury member-for example, amputating the wrong limb or leaving surgical implements in the operative field. A physician specializing in a given field will be held to the standard of other specialists in the same field, rather than to the standard of nonspecialists.

To be eligible to receive federal funds such as Medicare and Medicaid, hospitals with an emergency department must offer emergency and stabilizing treatment services to the public without bias or discrimination [13]. The Emergency Medical Treatment and Active Labor Actis a comprehensive federal law that obligates hospitals offering emergency services to do so without consideration of a patient's ability to pay. It's important to note that this obligation does not apply to inpatients or non-emergent conditions. The absence of bias in the delivery of care should not be misunderstood to suggest all hospitals must provide all medical services, but rather the services they choose to offer must be delivered without bias to the individual patient.

Conclusion

A hospital and its entire staff owe a duty of care to patients admitted for treatment [14]. Following an emergency call, the ambulance service has a duty to respond and provide care. Accident & Emergency (A&E) departments have a duty of care to treat anyone who present themselves and are liable for negligence if they send them away untreated. Hospitals without an A&E facility will display signs stating the location of the nearest A&E department. This ensures that the hospital could not be held negligent if a

patient presented and required emergency treatment as the hospital or its staff had never assumed a duty of care. Once a patient is handed over, a duty of care is created between the patient and the practitioner and this cannot be terminated unless the patient no longer requires the care or the carer is replaced by another equally qualified, competent person. It is therefore extremely important that practitioners areaware of their local policies, professional standards and their scope of practice to avoid becoming liable for litigation by putting a patient at risk, delivering ineffective care or breaching their duty of care.

If a person has an extremely high blood pressure, if the condition persists or the patient is not treated, symptoms such as headache, fatigue, nausea, fatigue, vomiting, lack of air and dizziness may appear. However, these symptoms are a sign (possibly caused by pressure) of brain, eye, heart and kidney damage. Sometimes people with very high pressure can be very tired, even fallen in the coma because of brain edema. This condition is called hypertensive encephalopathy and requires urgent medical treatment. After high blood pressure diagnosis, it is necessary to determine the effect of elevated blood pressure on important organs, especially on blood vessels, heart, brain and kidneys. The retina is the only place where the physician can directly see the effects of high blood pressure on small blood vessel arteries. There is a reasonable belief that changes to the retina are similar to changes in blood vessels anywhere in the body, for example in kidneys. Determining the degree of retinal damage (retinopathy) the physician can classify high blood pressure by weight.

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