

# Hypertension and the SOF Warrior

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## ABSTRACT

Many Soldiers regard hypertension is an innocuous disease. It is something that happens to civilians and older people; something that can be taken care of at home station. These are dangerous assumptions. There are Special Operations Forces Soldiers whose hypertension is not adequately controlled resulting in permanent end organ damage. This refresher on hypertension is integrated into a case study of one such Soldier.

There are approximately 7000 Special Operations Forces (SOF) personnel in the Central Command (CENTCOM) area of responsibility (AOR) at any given time. These forces are made up of personnel from all branches of the Armed Forces, including the reserve components. Many of these SOF operators performing their duties have been deployed back to back to the AOR in places that are often devoid of the traditional support mechanisms such as troop medical clinics and other echelons of medical care. While many of the medical providers at the team/platoon level have primary care training, they are understandably often more concerned with trauma care. This high operational tempo, coupled with the prevailing attitude in SOF that if the operator interacts with the medical community he may be “benched” creates a void where some of our operators may not be receiving good preventative care. The population of America currently is around 300 million. Approximately 60 million of those 300 million are at risk of life-altering consequences of poorly controlled high blood pressure.<sup>1</sup> Because we in SOF have a much younger and healthier population, one out of every five operators do not have hypertension (HTN): however, if only one in fifty operators had untreated HTN, that would be one too many.

HTN is a disease that is insidious. The Merriam-Webster dictionary provides two meanings for insidious and both are appropriate. First, it can mean “awaiting a chance to entrap” and second, it can mean “having a gradual and cumulative effect.”<sup>2</sup> Entrapment by hypertension could be readily understood by the millions of Americans who visit their local dialysis center weekly or the many people that wait for sighted assistance to go grocery shopping. Where we can mitigate hypertension’s insidiousness is in this latter definition. It is generally understood that long-standing HTN can, over time, have cumulative effects

on the eyes and kidneys and lead to stroke and coronary artery disease.<sup>3</sup> According to the American Heart Association, approximately 69% of people who have a first heart attack, 77 % of who have a first stroke, and 74% who have congestive heart failure, have a blood pressure greater than 140/90 mmHg.<sup>4</sup> Cumulatively, these diseases represent some of the greatest costs both financially and in terms of suffering in our nation. Consider that the United States spent \$1.9 trillion on healthcare in 2004, comprising 16% of our gross national product.<sup>5</sup> Compare that to the Global War on Terror which has cost approximately \$349 billion total to date.<sup>6</sup>

The importance of these staggering figures is that much of this expense and suffering is avoidable with good early primary care. As primary care givers, we have a unique opportunity to intercede early in these destructive processes. We have the opportunity to check routine blood pressures for patients regardless the reason they are seeing us. One would think that the whole world knows about the dangers of HTN, but the facts show differently. Even though there has been an increased effort to educate the public and medical communities in recent decades, between 1999 and 2000, studies that were conducted demonstrated that 63.4% of people with high blood pressure didn’t know they had it. This was especially true in the black community where HTN is more prevalent and begins at an earlier age than whites.<sup>7,8,9,10</sup> Considering approximately 20 percent of the Armed Forces are black, this is relevant data.<sup>11</sup>

It is easy not to prioritize HTN in SOF. We consider ourselves too young, too healthy, and too busy in the deployed environment. The idea that HTN is not going to kill anyone for the short period of the deployment and that it can wait to be handled by a primary care manager (PCM) is a dangerous presumption. The current environment of multiple

deployments combined with the increased joint operations and with people of various backgrounds, sets the stage for many service members not being regularly cared for by an established primary care manager in the traditional sense. In some cases the documented amount of time between visits with any healthcare provider is five years between periodic exams.

In our role as SOF medical operators, it is vital to the long term health of America's heroes that we pay attention to the long term health issues of our team mates. Routine blood pressures should occur on every patient encounter. They should be consistent and according to an established protocol, such as that published by Perloff, et al.<sup>12</sup> It is important that blood pressures be obtained on patients that have been seated for at least five minutes, have not smoked or ingested coffee within the last 30 min, and with a cuff that is appropriately sized (bladder width within the cuff should encircle at least 80% of the arm).<sup>8</sup> The pressure should be obtained twice and averaged. If an elevated blood pressure is found, have the patient return at least one more time for another blood pressure check. Three and five day blood pressure checks are a common primary care tool for the diagnosis of HTN, but it is important that consistency be maintained. This means that, if possible, all three to five blood pressures be obtained by the same person using manual equipment and the same technique each time.

An important element to the discussion is a definition of HTN. The most commonly accepted standard for diagnosis of HTN is published by the U.S. Joint National Commission on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. The most current report available is the 7th report and is known as the JNC7 (Figure 1). It establishes by committee what is considered normal vs. abnormal. This report is a departure from the previous six reports in that it is more aggressive in the diagnosis and treatment of HTN.

BP Classification	SBP mm Hg	DBP mm Hg
Normal	<120	and <80
Prehypertension	120–139	or 80–89
Stage 1 hypertension	140–159	or 90–99
Stage 2 hypertension	160	or 100

Figure 1 JNC 7 Classification of Blood Pressure for Adults

Once the diagnosis of HTN is made it is important that a full evaluation be performed. If that is not possible at your level of care, you should consult up to the next level of care until the proper examination is completed. There are times when a proper exam will not be possible because of the mission or operational tempo. In these rare circumstances, it is important to be the patient's advocate and have the exam completed at the next possible opportunity. It is important to remember that the SOF medical asset is being relied upon to ensure quality medical care for the team. Having been an 18D, I think I understand the role and capability of the SOF medic. There are times to practice "teamhouse" medicine, but when you have the support infrastructure available that enables you to practice to the "gold standard" you should endeavor to do so. Resist the temptation to refill medications without proper evaluation and consideration. It is not unreasonable to think that a service member could have a prescription without having undergone a proper evaluation, so it is imperative that a review of the chart occur along with a good review of history.

A proper exam should be obtained for several purposes. It is useful to establish a pre-treatment baseline to uncover correctable secondary forms of HTN, determine presence or extent of target end organ damage, and to determine if other risk factors for developing atherosclerotic cardiovascular disease are present.<sup>13</sup> Routine laboratory tests recommended before initiating therapy include a 12-lead ECG, urinalysis, blood glucose, hematocrit, serum potassium, creatinine (or the corresponding estimated glomerular filtration rate [eGFR]), calcium, and a lipoprotein profile (after 9 to 12-hour fast) that includes HDL and LDL cholesterol (HDL-C and LDL-C) and triglycerides (TGs).<sup>14</sup>

#### CASE STUDY

Keeping the previous information in mind, the following is a case study. A 35 year-old active duty Air Force major presented to our forward deployed troop medical clinic for medication refill. The service member stated that he had taken all of his Atenolol and needed a refill. The service member had a permanent change of duty station to the CENTCOM AOR so he brought his permanent outpatient record with him. A detailed history uncovered that the service member had only recently been diagnosed with HTN. A review of the service member's medical record failed to reveal any laboratory testing of any kind. When asked, the service member stated he was pretty sure he did not undergo any laboratory testing in conjunction with his diagnosis

of HTN. An initial review of the service member's outpatient record demonstrated that in November of 1998 an orthopedic physician assistant recommended that the service member be referred for a five day blood pressure check. Further review of the chart did not turn up any evidence, nor was the patient able to remember those checks ever being performed. In fact, the first evidence of someone asking the patient about HTN was in an entry dated March of 2006. In that entry, the provider wrote that the service member stated no one had ever previously discussed HTN with him. Evidence of six opportunities for intervention went without follow-up in the service member's chart. This is an unfortunate problem that occurs for a myriad of reasons. This is why each service has developed some type of preventative health screening. Unfortunately, persons performing these screenings may not know what constitutes HTN. At the service member's preventative health assessment in 1995, he had a blood pressure of 147/93mmHg, but in 1996 there was no blood pressure or pulse recorded for that year. Even in his most recent preventative health assessment (2005) his blood pressure was 129/91mmHg. None of these presentations were followed-up. Another example of failure to follow-up was in September 1999, when the service member went to the clinic asking for his cholesterol to be checked. The provider documented a family history of coronary artery disease, diabetes mellitus, and a blood pressure of 130/90 mmHg. I understand that during the time frames mentioned, different standards may have applied, and I in no way point these items out to bring discredit to anyone. I point these out to illustrate how you must perform your own history and physical exam including a thorough chart review. In the SOF patient population you can not assume that an appropriate evaluation has been performed, and just refill someone's medication.

In light of the evidence that the service member probably had long standing hypertension and not having Composite Health Care System (CHCS) access to check for laboratory results, a full exam was performed. The laboratory results were utilized to estimate the service member's glomerular filtration rate (GFR) utilizing the modification of diet in renal disease (MDRD) equation. The service member's GFR was calculated to be 73.07. This was considerably below the predicted value which could indicate kidney dysfunction and the urinalysis demonstrated trace protein. Normally, there should be no evidence of protein in urine. This finding can also indicate kidney dysfunction brought on by longstanding hypertension.

Proteinuria with loss of renal function, should at the very least prompt further testing, and may require an evaluation by a nephrologist, and possible a renal biopsy.<sup>15</sup>

HTN is insidious, not innocuous. If we take the figure of one in fifty operators having untreated HTN that would mean that there are 140 Special Operators out in the AOR today that are losing a little more kidney function, losing a little more vision, and moving a little closer to a stroke or heart attack. By performing annual medical screenings on our teammates and getting vitals with every medical intervention, we can make a difference. This is especially true with those that are at increased risk because of life style choices, race, or family history. As demonstrated, you can be young and have HTN. SOF operators deserve the very best, so we should give it to them every opportunity we can.

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CPT George W. Horsley joined the Army April 1987. After the Basic Airborne and Ranger Indoctrination Program, he went to the B/2 Ranger BN, Fort Lewis WA, as an infantryman from Oct 1987 to Dec 1990. During this time, he participated in Operation Just Cause. He attended the Special Forces Medical Sergeants course and was assigned to the 3rd BN 10 SFG(A) at Fort Devens, MA, as a team medic and Group Medical Sergeant. While with 10th Group, he participated in Operation Provide Comfort II. He left active duty and joined A/2/19 SFG(A) in the Rhode Island National Guard. He then attended Physician Assistant School at Fort Sam Houston, TX, where he obtained a Masters in Physician Assistant Studies. He then became the battalion Physician Assistant for 2nd BN 19th SFG (A) in 2001. CPT Horsley was mobilized with his group for Operation Enduring Freedom (OEF) in Dec, 2001 and was assigned to A Company to perform duties as a B team medic. He remained with 2/19 until early 2006 when he was assigned

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