

The value of war for medicine: questions and considerations concerning an often endorsed proposition

LEO VAN BERGEN

Department of Medical Humanities) VU Medical Centre) Amsterdam

Abstract

This paper examines the relationship, often claimed as beneficial, between war and advances in medicine and surgery. Some of the conflicting opinions that have been expressed are discussed. Military medicine in general is conservative and non-innovative. Some medical advances have indeed originated in war, but many other efforts were failures and are forgotten. The application of others is limited to their particular time and place, while some would have been made sooner or later in any case. In addition, the basic objective of military medicine is to maintain the strength of the fighting force rather than to help the individual, and some doctors have indeed been involved in developing means of destruction.

Keywords: Emergency surgery, Medical advances, Medical ethics, Military medicine, Public health, War injuries

'When we speak of advantages of war, this concerns in the first place medicine' [1].

'Military advancement brings medical advancement.' (BJ Honeycutt to Hawkeye Pierce in *MASH-4077*)

'Many steps in surgical advancement and anaesthesiology during the 20th century owe a debt to military medicine The impact of warfare ... on medical research can be stimulating and demanding, leading sometimes to real achievements' [2].

Introduction

The Chair, Col Dr Wertheim, asked me: 'Many doctors think that war promotes medicine. What is your opinion on this matter?' at the *War and*

Public Health congress in the Netherlands in November 2002, after I had expressed my doubts on the relationship, which is often thought to be proportional, between war and deteriorating public health. At the time, I replied that, although the proposition is indeed often endorsed, I feel that the issue remains questionable. I examine the matter in more depth here.

The thought that war, however terrible it is, at least promotes medicine or medical science has been endorsed by many doctors for years. My dentist, for instance, was elated when he heard that I was writing a book about the First World War because it had been 'very beneficial for the development of dental surgery'. The proposition can be found in the autobiography of the German surgeon Ferdinand Sauerbruch, who talked about war as 'the bloody teacher' [3]. He examined the First World War in particular, and was certainly not the only one with this opinion on that war [1, 4-6]. According to many doctors in 1914, war would be beneficial not only for medical science, but also for the mental and physical condition of the soldier; this notion did not disappear when the war turned out to be more bloody than was anticipated and lasted longer than expected [7-10]. It was this war too that was the focus of the recently published biography of the plastic surgeon Johannes Esser, in which Emeritus Professor J van der Meulen from Rotterdam is quoted as observing in response to Esser's work:

The irony of war means that where destruction is intended and attained, reconstruction is also inevitably the result. For destruction brings people face to face with their insignificance and forces them to search for an alternative. The more ingenious the methods of destruction, the more salutary are the restoring alternatives [11].

However, the First World War was not the only war that led to this conclusion. Based on the work of the American columnist Albert Deutsch, it also arose from the war of 1939-45, to his sincere dissatisfaction incidentally. He himself would be unable to mention a single example of a medical invention of great importance to originate from that or any other war. He was not the only sceptic: even some military doctors preceded him. JS Billings (1838-1913) took the view that the experiences of eighteenth century surgeons gained on the battlefield had contributed little to the development of surgery, and Fielding H. Garrison, author of *Notes on the history of military medicine* (1922), noted during the First World War that the medical innovations in that war were 'clever and respectable', but 'by no means brilliant' [12]. This however did not disrupt the general outlook on the idea, judging for instance from a NATO handbook dating from the early 1960s, which states that a nuclear war 'might' (!) bring misery, but would certainly augment knowledge about radiation sickness. Vietnam produced a good deal of knowledge about

psychological issues - exaggerated by anti-war psychiatrists - and during the last war in Iraq many recently developed revolutionary bandages could be tested [13]. When, in response to such comments, a Dutch radio programme put the proposition before a number of doctors at the time of the Iraq war, none of them did not fully subscribe to it and this is not surprising. Even in a book which is generally pacifist, a military expert lists medical matters that owe much to warfare, such as 'the proper treatment of infected wounds', 'the external fixation of limb fractures and methods of treating special forms of gangrenes, trench, foot, cold injuries and burns', 'brain and neurosurgery', 'reconstructive surgery', 'the understanding of stress reactions and disorders', 'quick support in critical situations', and 'catastrophe or disaster medicine' [2]. War simply causes an abundance of diseases and injuries; as a result new methods can be tested and old methods can be thrown out. It is supposed that surgeons in particular enter a war as laymen and come out more skilled, which would benefit civilians in times of peace and soldiers in a next war. Everything seems to make sense, but does it really? There are questions to be asked.

A causal connection?

Have certain wars yielded medical knowledge in a certain area that have survived the boundaries of war? Of course, everyone acquainted with medical work in times of war knows examples in his speciality of procedures which have their origins in a war and which are still, perhaps in an evolved form, used today. On the other hand, there are many forgotten failures with all their consequences for the treated soldier - but these do not negate the achievements, especially in wars of some duration and dimension such as both World Wars and the Vietnam war.

However, the first question to be raised is whether that knowledge is inevitably linked together with those wars? Without wanting to deny the 'facts' - although there are cases which were wrongly linked to certain wars, such as antisepsis and the Franco-German war of 1870 - questions can be put concerning the necessity of a war situation for the emergence of new methods and techniques. Is it really a matter of a direct relation between a certain war and the scientific or practical knowledge that has been acquired during that time? In other words, could that knowledge not have been gained without those wars also? Have those wars produced knowledge simply because knowledge emerges from every human activity and over every period of some length? Furthermore, the question can be asked whether a discovery in wartime is in fact valuable for other times - whether during peace or another war? A subsequent question is whether war offers the right environment for testing and perpetuating new methods and techniques?

What of the attitudes of doctors in wartime? Was their aim increasing medical knowledge for the benefit of their patients? I hope that these

questions will stimulate reflection on the value of wartime medical science for civil medical science, and also for medical aid in other wars. Because diseases and injuries in times of war are connected to specific features of wars - dependent on, for instance, the state of the weaponry, the military strategy and tactics used, the geographical and climatic circumstances, the preventive measures taken, and of course public ideas about life and death this obviously limits the value of the knowledge and methods of treatment that are gained in that war for other wars, with a different strategy, different weaponry, under different circumstances and with different ideas concerning disease and health.

Relationships

In short, we have to ask ourselves whether the relation between medical advancement and war is as direct as is often supposed. The famous Esser-inlay, which protected transplanted skin, is seen as a direct consequence of the work that Esser performed in the Austria-Hungarian hospitals in 1914-18: that inlay was indeed first tested on deformed war victims. But there is no reason to assume that it would never have been tried if Esser had dealt not with war victims but with, for instance, road accident victims. In other words, is that invention not more coincidentally than inevitably connected to the war hospitals around Vienna and Budapest and first tested on war victims simply because there was a war on and he worked in a war hospital? The fact that the invention could have been done in other times is not simply stating the obvious, but it goes to the heart of the proposition that 'war is good for medicine'. This implies a direct relationship between war and medical advancement, while if these inventions could have been made in times of peace, that link is severed; what remains is a wartime invention simply because it was wartime.

Furthermore, what we need to examine is whether the evidence that is produced to prove that war is good for medicine is reliable. The industrial manufacture of penicillin was indeed partly a result of World War II, but its discovery had taken place in 1929. It is possible that its application would have been slower without the war, but it would certainly not have failed to occur, as is apparent in the fact that penicillin was first used on a large scale after a big fire in a nightclub in Boston, Massachusetts at the end of 1942, which had nothing to do with the war. Its success led to penicillin being placed at the disposal of military doctors [14].

Later, we can ask questions from a scientific point of view. Many of the medical experiments took place in appalling circumstances. From time to time injured people would be used to test treatment methods which would have raised questions in more normal times and were not always successful. Often it would not be a matter of treatment, but of a trial that would normally be tested on mice or rats, but for which people were available in wartime [15,16].

The often disastrous consequences for the individual were played down. The number of dead during a war leads to insensitivity to death not a sign of inhumanity, but a humane reaction that is necessary for the continuation of medical work. This makes one think about the use of medical science in war for medical science in general; tests in such circumstances are not reproducible in times of peace, which reproducibility is a key condition for scientific knowledge. In addition, the possibilities for exchange of knowledge - on a national, let alone an international, level - are limited, and long-term observation is practically non-existent. On the contrary, it is the tranquility and orderliness of peacetime that are beneficial for medical science. In the absence of an enemy this allows exchange of knowledge.

Questions

While these remarks mainly touch upon the scientific side of medicine, the practical use of war for the advancement of medicine also raises questions. War medicine and civil medicine generally differ too much in character for solutions found in one situation to be transferred to the other.

The problems that cry out for a solution in a war rarely occur in times of peace. Many wartime treatments have been of wounds that a doctor - to his great relief - would not often see even in war, let alone in less violent times, but even in frequently occurring cases the acquired knowledge may be of limited value. Gas gangrene was prevalent in the filthy trenches of World War I, but a doctor who thought that knowledge of gas gangrene would yield a prosperous career after 1918 would have been disappointed. Gas gangrene became practically unknown again, as had been the case in civilian hospitals before 1914 - it was unknown in the 1939-45 'war of movement', the jungle war in Vietnam and the peace operations or so-called 'clean wars' after 1990. Even in a subsequent war, the value of acquired knowledge could be small.

However, not all knowledge acquired in a war is completely useless for the following period or for a subsequent war. Nevertheless, in wartime every doctor will be faced with problems for which his civilian schooling and hospital knowledge did not prepare him, just as the solutions that he finds in the harsh practice of war will rarely if ever be needed outside it. A Dutch surgeon during the Second Gulf War in the early 1990s answered the question whether he would miss his beautiful hospital instruments: 'If need be, I will operate with a knife and fork.' To their disappointment because 'that is where the really interesting cases are' - the doctors were placed far from the front and had little to do, but even if the surgeon concerned had had the opportunity to execute formidable operations with cutlery, on his return he would have immediately used the fine material present in his hospital.

All this sheds a strange light on the thought that war is the taskmaster of surgery, although the enormous number of injured does indeed stimulate the imagination. However, this would be mainly directed towards faster rather than better recovery. Many injured soldiers have had to do without a leg that would not have been amputated under less pressure of time, which even in a limited war is much stronger than in times of peace. The inevitable search for alternatives, which is seen as an advantage of war, is frequently not pursued and often interrupted to change to a familiar method, while the alternatives which were nevertheless discovered were often only applicable to their time and place. It therefore remains questionable whether surgeons returned from the war more expert if only because this requires refresher courses and continuing education and circumstances do not permit this in a war. At best, many will have learned how to treat the most common injuries quickly. There was no time to consider whether the treatment used was also the best possible. War medicine, generally speaking, and especially near the frontline, is essentially conservative and non-innovative medicine.

Strengthening the fighting force

However, even if all such questions and considerations could be answered in the negative, it could still be the case that the idea that war promotes medical science or practice could be seen as justifying in retrospect the participation of doctors in a war. The main task of a doctor in times of war - wanted or unwanted - was and is not to help the individual but to strengthen the fighting force of the army [17]. This appears scandalous to some, but it is normal for many others. A military doctor or a doctor active in wartime is a member of the armed forces and will, as do other members of that army, have to consider its military aims first [18,19]. A doctor who regularly acts contrary to those aims will attract the anger of his military (medical) superior. This implies that the proposition 'war is beneficial for medicine' should immediately be followed by the nevertheless rarely proposed antithesis 'medicine is beneficial for war', because medicine, even if this is not the attending doctor's intention, raises the fighting strength and keeps the armed forces at full strength. It consequently has the effect of prolonging the war and subsequently of costing lives - but also because research in wartime is applied science at its utmost. The military in wartime dominates the medical, not just in the field and in the hospital, but also scientifically, and doctors give the well-being of the national army preference over the individual well-being of the soldier, not only in the field but also in the laboratory. Doctors play a role not only in prevention and healing, but also and not insignificantly - in developing means of destruction. While medical should focus on availability, medical research in wartime should be short-term, aimed at something not medical at all, not the well-being of the individual but the supposed welfare of the army and the nation.

Definitions

The last two issues to be discussed are matters of definition. The concept of health appears to deviate in times of war from the same concept in today's western times of peace. For some, medical ethics in wartime implies that the welfare of the nation, the people, and the army as a whole is paramount and that welfare depends on victory. From this point of view, it is the duty not only of the military, but also of the doctor to make his contribution to that victory, and from this point of view there is no discrepancy between military and medical obligations.

Secondly, in the relation between war and advancement of medical science the concept of 'advancement' should be developed. The relation between doctor and patient undergoes an '*Umwertung alter Werte*' ('a shift of all values'). While in peacetime the doctor is the patient's friend and aims at saving him from his ailments as quickly as possible, recovery in wartime, partly because of the military responsibility of the health officer, often means returning to the front. Not only is 'recovery' often tantamount to 'sufficiently recovered to return to fighting', but it is also known that this return is often not desired by the patient, for whom staying in hospital is not a necessary evil but a liberation. An indication of this is the large number of self-inflicted injuries, attempts to make an injury or illness appear worse than it really is, or the feigning of an illness. For many soldiers the advancement of medicine is rather a deterioration.

This 'advancement' raises doubts whether the technical accomplishments which someone like Sauerbruch [3] underlined, are all that a doctor needs. Is there not a danger that the possible effects of constantly violating peacetime medical-ethical rules will affect the doctor's attitude in practising his job in postwar times? And might inevitable and perhaps necessary attitudes in wartime, such as becoming emotionally numb or putting dying and death into perspective, result in unacceptable apathy in peacetime [20]. Even if a doctor returns from war as an accomplished technician, does this always mean that he has become a better doctor?

Availability

It can be concluded that during a war medicine is geared towards availability instead of recovery, and treatment is carried out on wounds that are so related to the circumstances that the value of the treatment for other times can be overrated. Scientifically, almost every precondition which is generally assumed necessary for medical research is absent, such as rest and time; the possibility of exchanging ideas, especially on an international level; the presence of control groups; review of long-term effects; and, not least, the possibility of monitoring and repeating experiments.

Conclusion

The relationship between war and the advancement of medicine is therefore not as unequivocal as might seem at first sight, and, furthermore, medical care in times of war seems unsuited to the promotion of the advancement of medicine in general. There are many uncertainties concerning the proposition 'war is beneficial for medicine'; it could even be reversed twofold: 'Peace is beneficial for medicine and medicine is beneficial for war'.

Acknowledgement

The author would like to thank Prof Dr Frans Meijman for his remarks on earlier versions of this paper.

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(Accepted 5 March 2007)

Leo van Bergen is a medical historian working at the Department of Metamedica (Medical Humanities), VU University Medical Centre, Amsterdam. He studied history and specialised in both military and medical history. His main interest therefore is the relationship between war and medicine. His PhD on the history of the Dutch Red Cross focused on its ideas on war and peace and its activities in the First and Second World War. More recently he wrote a medical history of the First World War, which is now in the process of translation and will be published by Ashgate in 2008.

Correspondence: Department of Metamedica, VU University Medical Centre, Van der Boechorststraat 7, PO 7057, Amsterdam 1007 MB, Netherlands; email: l.vanbergen@vumc.nl