

## Treatment of Cholera with Hydrotherapy by Lanaras: A Page from History

*Lanaras'ın Hidroterapi Tekniğiyle Kolera Tedavisi: Tarihten Bir Yaprak*

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### Abstract

Cholera is reemerging as a major public health concern in rural areas. The advances in our understanding of the pathophysiology and treatment of this disease have enriched the clinicians' therapeutic armamentarium. Treatment of cholera however, was not always effective or straightforward. In this article we present the use of the controversial treatment of hydrotherapy, as described in the book *Mémoire sur le Choléra Asiatique de 1894 à Samsoun* by Dr. C. Lanaras. *Klimik Dergisi* 2011; 24(2): 82-5.

**Key Words:** Cholera, hydrotherapy, epidemiology.

### Özet

Kolera kırsal alanlarda yeniden bir tehdit olarak kendini göstermeye başlamaktadır. Hastalığın patofizyolojisi ve tedavisinde meydana gelen gelişmeler, uzmanların kullandığı araç ve gereçlerin artmasına olanak sağlamıştır. Ne yazık ki koleranın tedavisi her zaman doğrudan ve etkili olmamıştır. Bu makalemizde Dr. C. Lanaras'ın *Mémoire sur le Choléra Asiatique de 1894 à Samsoun* kitabında söz edilen tartışmalı hidroterapi tedavisi uygulamasını sunuyoruz. *Klimik Dergisi* 2011; 24(2): 82-5.

**Anahtar Sözcükler:** Kolera, hidroterapi, epidemiyoloji.

### Introduction

Cholera is a diarrhoeal disease resulting from the faeco-oral transmission of *Vibrio cholerae*. Medical advancements of the first half of the twentieth century led to an increased understanding of the pathophysiology of this disease, whilst greatly enhancing the physicians' armamentarium for diagnosing and treating cholera. During the second half of the 19<sup>th</sup> century, however, views on the optimal way of treating cholera were varied, indicating the confusion and ineffectiveness of therapeutics of cholera at the time.

Remedies employed in the management of cholera in the 19<sup>th</sup> century were classified as external or internal. External remedies included baths and vapor baths, venisection, blisters and synapisms, frictions and enemas (1-4). Internal remedies included antispasmodics, astringents, diuretics, purgatives and emetics. More controversial remedies included the use of antipyretics, antiseptics, and analeptics. The basis, however, of the treatment of cholera was quinine, a stereoisomer of quinidine traditionally used in the treatment of malaria.

During the 1894 epidemic of cholera in Samsun, a city in present day Turkey, the physician Lanaras employed the controversial treatment of hydrotherapy, which consists of exposing the patients to hot baths (5,6).

In this paper we present the methods employed as well as the results obtained by the use of this method, as described in the books of Dr. Lanaras *Mémoire sur le Choléra Asiatique de 1894 à Samsoun*, which was awarded the Barbier Prize by the Academy of Medicine of Paris in 1895, and *Étude sur les Propriétés Thérapeutiques de l'Eau dans les Maladies Aiguës* (Figures 1 and 2).

We believe it is of interest to today's physician, as it provides insights into late 19<sup>th</sup> century understanding of the disease.

### Historical Note

The cholera epidemic of 1894 broke out initially in the village of Kadıköy on the 4<sup>th</sup> of May 1894 and lasted two months. The sudden onset delayed the implementation of sanitary measures, thus facilitating the quick propagation of the epidemic.

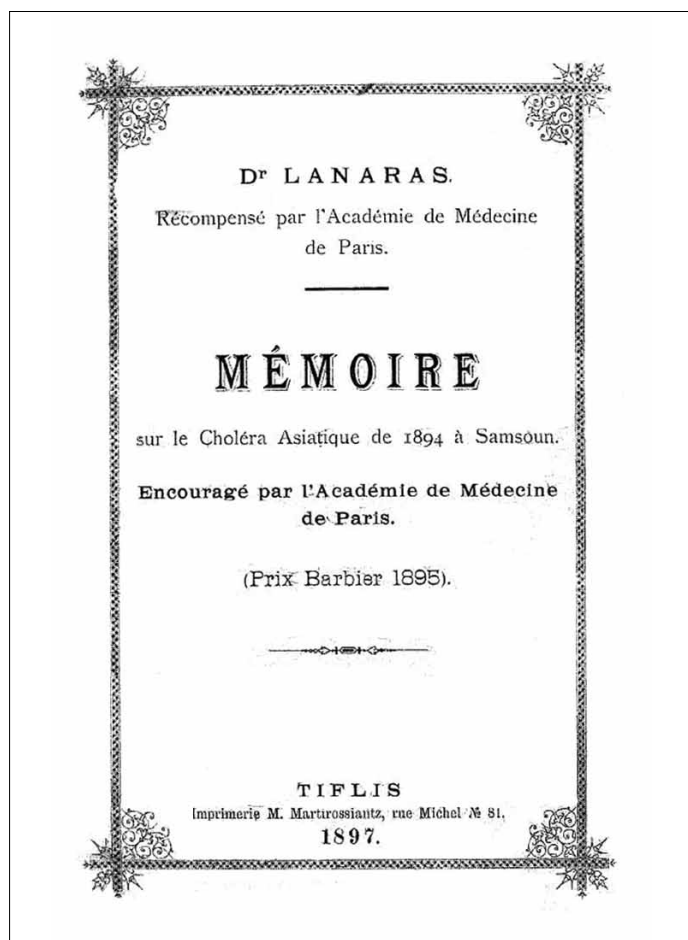
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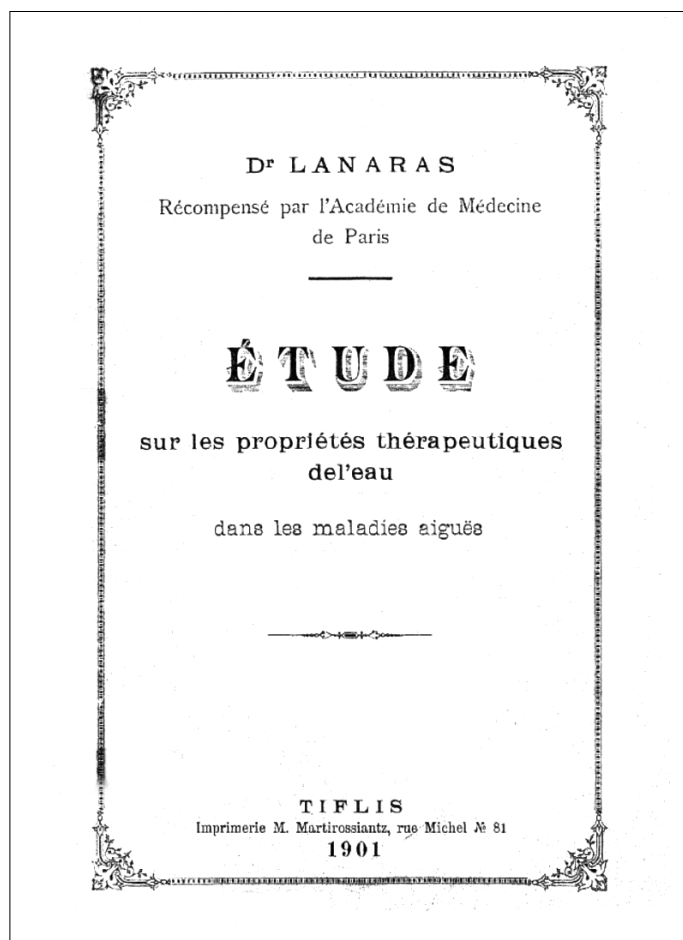
**Figure 1.** Front page of Lanaras's book entitled *Mémoire sur le Choléra Asiatique de 1894 à Samsoun*.

Lanaras and his colleagues treated a total of thirty two patients. Of those, nine patients died and twenty-three survived, having been treated without any complications being reported. All nine deceased patients who sought medical attention were severely dehydrated and sought medical attention very late after the onset of the disease. Of those who survived, seventeen underwent hydrotherapy and received no other treatment, and six were treated only by pharmacological means.

Common symptoms and signs included intense vomiting and diarrhea, respiratory and cardiovascular disorders, cyanosis, lower extremity and back pain, oliguria or anuria, insomnia, thirst and tachycardia. No uraemic symptoms were reported.

Lanaras and his colleagues initially attempted to employ the conventional therapeutic modalities that were available to them, but became disillusioned by the results they obtained, both in terms of treating their patients successfully and in providing relief from fever and thirst.

They initially employed localized hydrotherapy but quickly realized the superiority of generalized hydrotherapy, as it constituted a safe, efficient and costless alternative to pharmacotherapy. The authors listed as merits the "drop of core temperature by 1°C for every 15 minutes of application," the prevention of evaporation of the "aquatic components of the



**Figure 2.** Front page of Lanaras's book entitled *Étude sur les Propriétés Thérapeutiques de l'Eau dans les Maladies Aiguës*.

**Table 1. Algorithm for the Selection of the Appropriate Form of Hydrotherapy (Amalgamated from References 5 and 6)**

Hydrotherapy Form	Indications
General	1. Age 1-15 y/o
	2. Core temperature >40°C
	3. Cases of moderate severity
Localized	1. Age >15 y/o
	2. Core temperature <40°C
	3. To all patients lacking medical care

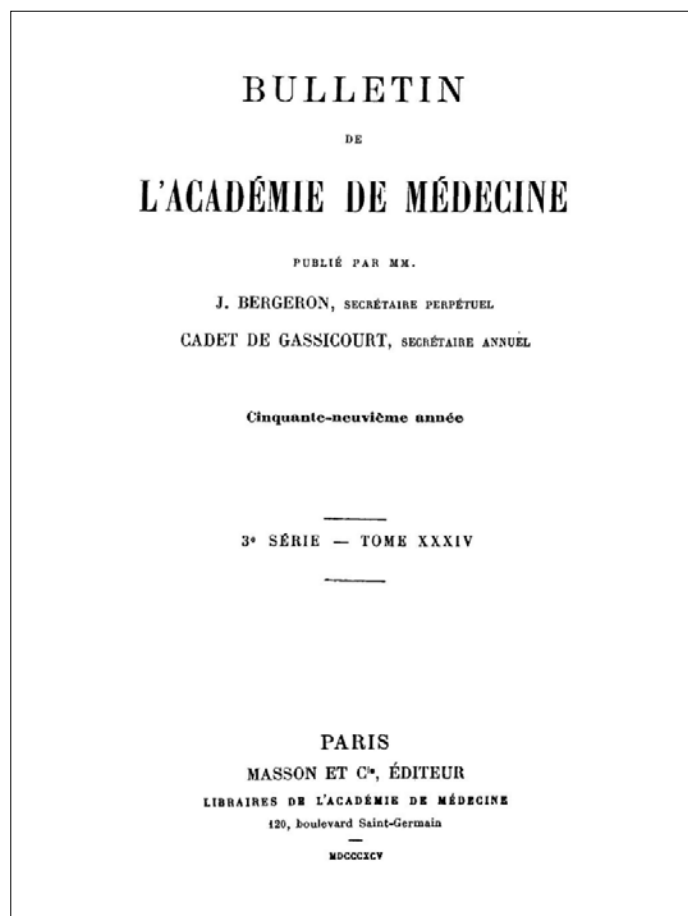
patient's blood" and the "inhibition of production of carbonic acid". Additionally, it was believed to be useful in the "prevention of cardiac paralysis and normalization of respiratory function", the "protection of patients from the production of toxic byproducts of their metabolism and preservation of the function of the endocrine system", and in promoting perspiration.

At the time of the epidemic there were no concrete rules on the duration or the temperature of the water baths (Tables 1 and 2). As their group had no previous experience with this method, regulation of the aforementioned parameters was initially on a trial and error basis, taking into consideration

**Table 2. Algorithm for the Selection of the Appropriate Water Temperature (Amalgamated from References 5 and 6)\***

Temperature	Indications
5-25°C	1. Temperature >41°C
	2. If there is an indication for localized hydrotherapy
	3. If localized hydrotherapy is to be performed on the patient's head
	4. Hydrotherapy during the acute phase of cholera
25-35°C	1. Cases of medium severity
35-45°C	1. If there is an indication for general hydrotherapy
	2. Hydrotherapy on patients with cholera of moderate severity
	3. Hydrotherapy on mild cases

\*As the author acquired more experience with the method, the algorithm was refined and its application became more widespread. This is reflected by the increased range of temperatures that the author used for different clinical presentations of cholera.



**Figure 3.** Front page of the 1895 volume of the *Bulletin de l'Académie de Médecine*, in which the abstract of Lanaras's award of the Prix Barbier was included in pages 434-5.

the preferences of each individual patient. Nevertheless, Lanaras was adamant about commencing the treatment as soon as possible, that it be administered for the whole duration of the disease and that the treatment be constant and

frequent, as well as proportional to the severity of the patient's condition.

#### The "Prix Barbier" of the Academy of Medicine, Paris

Baron Joseph-Athanase Barbier was a military doctor, born in 1767 in Gros Caillou, France. A son of an eminent French surgeon, Baron Barbier trained in medicine and anatomy under Philippe Jean Pelletan and Pierre Joseph Desault. He furthered his training in surgery at the Hôpital de la Charité, and subsequently held permanent posts at the army hospitals of Chartres, Saint-Denis and Poissy. In 1814 he took the post of Chief and Professor of Surgery at Val-de-Grâce in Paris.

Baron Barbier was a founding member of the Académie Royale de Médecine, and a prolific writer of medical textbooks. For his services, he was decorated with the *Ordre de la Réunion* and the *Légion d'Honneur*, and subsequently made a baron (7).

Baron Barbier died in 1846 but bequeathed through his will a sum of 9,000 francs be used for the formation of a prize that was to be awarded to scientist who made remarkable discoveries. Specifically (8):

"...Un prix de 3000 francs, annuel, serait accordé pour une découverte précieuse intéressant la science chirurgicale, médicale, pharmaceutique et botanique, 3000 francs à celui qui découvrirait des moyens complets de guérison pour les maladies inconnues et jusque là incurables, 3000 francs pour l'invention d'un instrument, opérations, bandages et appareils ....".

(...An annual prize of 3,000 francs will be awarded for a significant discovery of interest to the surgical, medical, pharmaceutical and botanical sciences, 3,000 francs to those who discover a complete means of treating unknown illnesses, which are incurable up to that point, and 3,000 francs for the invention of instruments, operative techniques, bandages and devices...).

#### Discussion

Despite the encouraging initial results, for which Dr. Lanaras was awarded the Prix Barbier by the Académie de Médecine de Paris (Figure 3), the penetration of his method into the clinical practice of his time, was limited. This can be attributed to a number of reasons.

Pasteur, the French chemist and microbiologist, had established microbiology as a rapidly expanding medical discipline. Lanaras, however, strongly opposed the ideas proposed at the time on the microbial cause of infectious diseases. This led to a dismissal of his work, as it was viewed a remnant of the old "miasmatic" school of thought on the pathogenesis of infectious diseases. Lanaras challenged his peers by providing an alternative treatment whose mechanism of action he could not explain. At the same time, he was dismissive of the validity and efficacy of all known treatments of the time.

Hydrotherapy was regarded by prominent physicians of the time as a very controversial, if not at times harmful, therapeutic modality. Baths were described as "upon the whole a doubtful remedy, and more effectual and less prejudicial

means may be substituted for them" (2). The small number of patients Dr. Lanaras and his colleagues treated during the Samsun epidemic, was not enough to convince the rest of the medical world of their safety and efficacy.

Lastly, Lanaras not only failed to provide in his first publication a detailed description of his method, which he subsequently did with his second publication in 1901, but also failed to provide algorithms regarding the appropriate temperature and duration based on the severity of the disease. This made it very difficult for his peers to validate his findings, and incorporate his method into their clinical practice.

Being unable to understand, reproduce or validate the method that was proposed by Lanaras for the treatment of cholera, his peers continued on their quest for a safe and efficient alternative, and despite his incessant efforts hydrotherapy was gradually forgotten.

#### **Conflict of Interest**

No conflict of interest was declared by the author.

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