STATISTICAL ACCOUNT
OF
CHOLERA,
IN THE SEAMEN'S HOSPITAL, IN 1832.

BY GEORGE BUDD, M.B., F.R.S.

PHYSICIAN TO THE SEAMEN'S HOSPITAL.

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DURING the winter of last year, a Report of some cases of cholera that occurred in the Seamen's Hospital, Dreadnought, in the month of October 1837, was presented to the Society by Mr. Busk and myself; and has been published in the Transactions of the Society for the present year. My attention being drawn to the subject, I was led to examine the records, preserved at the Dreadnought, of former visitations of cholera; and this examination has disclosed some facts illustrative of the influence of age, and some other circumstances, on the mortality in cholera, and the liability to that disease, which, I trust, will prove not uninteresting to the Society.

There are many circumstances which render the Dreadnought peculiarly favourable to inquiries of this nature. The patients are all sailors,—persons

whose circumstances are alike in every thing except climate,—and the only restriction to admission is, that the applicant must have been employed as a sailor within the six months preceding. When, therefore, we investigate in these patients the influence of age on disease, we find already eliminated the disturbing influences of sex, profession, and many other particulars, which render such investigation in general hospitals extremely complicated.

The registers of the Dreadnought, which might well serve as models for those of similar institutions, are kept with the greatest care, and contain almost all the information that can be desired respecting the nation, age, and quality of every patient admitted, the time he has been at sea, and the vessel in which he last sailed: and, by a recent regulation, the ages of all sailors who enter the port of London are registered at the Custom-House. I have obtained permission to examine these registers, and have thus been enabled to ascertain the proportional number of sailors of any age who enter the port of London, or the proportional number of the persons of a given age who are admissible into the Dreadnought.

It will be recollected that cholera broke out at Sunderland in October 1831, and made its first appearance in London in the month of February 1832. On the 17th of February of the latter year, a sailor, affected with cholera, was admitted into the Dreadnought, and died there on the 24th. No other cases were received; but between this time and the

18th of May, applications were made for the admission of 20 cholera patients, who were sent to H. M. S. Dovor, which, fitted up as a cholera hospital, was stationed in the river at Deptford, and was at that time under the Government charge. The disease did not break out in the Dreadnought till the 27th of May, when two of the patients were attacked; but, before the month of October, 15 cases occurred there, all of which were transferred to the Dovor. On the 18th May, the Dovor came under the management of the Dreadnought Committee, and between that time and the 12th of January 1833, 160 cases were received there. We proceed to give, under different heads, some analysis of these cases.

I. MORTALITY IN DIFFERENT PERIODS OF THE
EPIDEMIC.

The following Table exhibits the number of cases admitted in each month, and the number of deaths and recoveries in these cases.

TABLE I.

	In May, from the 20th to the end.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan. to the 12th.	Total.
Cases .	12	23	39	42	21	13	2	6	2	160
Died .	8	16	24	26	12	4	—	2	1	93
Recovered	4	7	15	16	9	9	2	4	1	67

It will be seen from this Table,—

First. That the number of admissions increased during the months of June, July, and August ; after which it rapidly diminished.

Second. That the proportion of deaths to recoveries was 93 to 67, or rather greater than 4 to 3 ; but that the mortality varied in a remarkable manner, becoming gradually less as the epidemic approached its termination. At first, the number of deaths was double that of recoveries ; towards the end of the epidemic, that is, after the month of September, it was only half their number.

II. INFLUENCE OF AGE ON MORTALITY.

The second Table exhibits, in classes, the numbers of those patients whose ages were under 20, between 20 and 30, 30 and 40, 40 and 50, 50 and 60, 60 or upwards ; with the number of deaths and recoveries in each class.

TABLE II.*

	AGES.						Total.
	15—20.	20—30.	30—40.	40—50.	50—60.	60 and upwards.	
Cases .	21	43	39	35	15	7	160
Died .	9	20	27	17	13	7	93
Recovered	12	23	12	18	2	—	67

* If in this Table we divide the second number by the first in each vertical column, we obtain a series of quotients which express the relative chance of dying in persons affected with cholera, whose ages are included in the respective columns.

This Table shows the extraordinary influence of age on mortality in cholera. The mortality was least in persons between the ages of 15 and 30 ; and in these the number of deaths was less than that of recoveries : it was greatest in persons above the age of 50 ; of 22 above this age, 2 only recovered ; the age of each of these two was 53 : of 13, whose ages exceeded 53, not one recovered.

III. INFLUENCE OF AGE ON LIABILITY TO THE DISEASE.

Advanced age not only is unfavourable to recovery in cholera, but gives a predisposition to the disease. This will be seen from Table III., in which the number of cholera patients, within certain limits of age, are compared with the proportional numbers of sailors within the same limits of age. The proportional numbers in this case were derived by taking from the registers at the Custom-House the ages of 5,000 sailors, entered in succession ; by distributing these ages in classes, so as to obtain the numbers whose ages are comprised between the limits in question ; and by reducing these numbers to the scale of 160.

TABLE III.*

	AGES.						Total.
	Under 20.	20—30.	30—40.	40—50.	50—60.	60 or upwards.	
Proportional number of Sailors .	17·056	76·032	36·160	21·504	7·488	1·760	160
Cholera Patients .	21	43	39	35	15	7	160

It appears from this Table, that persons between the ages of 20 and 30 are the least liable to cholera: the number of cases in persons between these ages is less than it would have been had all ages been equally subject to the disease, in the ratio of 43 to 76, which is rather less than 4 to 7. In persons above 30, the liability to attack continually increases with age. Between the ages of 30 and 40, the number of cases is greater than it would have been had all ages been equally subject in the ratio of 39 to 36, or 13 to 12; between 40 and 50, in the ratio of 35 to 21, or 5 to 3; between 50 and 60, in the ratio of 2 to 1: and in ages above 60, nearly in the ratio of 4 to 1.

A fact analogous to this greater susceptibility of old persons to the influence of the cholera poison,

* If in this table we divide the upper number by the lower in each vertical column, we obtain a series of quotients, which express the relative chance of taking cholera, incurred by persons whose ages are included in the respective columns, who are equally exposed to the causes of the disease.

is the increasing susceptibility of persons as age advances, to the influence of the poison of lead.

In a paper on colic of lead, recently published by M. Grisolle, is the following interesting statement : —“ Having arranged my patients in four sections, comprising those of ages from 18—30 ; 30—40 ; 40—50 ; 50—70 ; I found the mean lengths of their respective sojourns at the manufactories 65, 60, 50, and 37 days. Hence it appears that the number of days necessary to catch the disease diminished as the age of the subjects increased.”

It will be seen that to this affection as to cholera, it is past the age of 50 that the susceptibility increases with the greatest rapidity. There are, on the other hand, some poisons by which old persons seem to be less affected than young. Is this latter fact apparent only ? Is the rareness of scarlatina, measles, or small-pox, in old persons, explicable from the circumstance, that the number is comparatively very small of persons who reach advanced age without having had those diseases which affect the same individual once only ; and from the consideration that some of this small number may enjoy a constitutional peculiarity, which confers immunity from the disease ?

If we multiply the numbers derived from Table III., which express the relative chance of taking the disease, by the numbers for corresponding ages (from Table II.), which express the probability of dying of the disease when taken, we obtain a series

of numbers that express the relative risk of losing life incurred by persons of different ages, who expose themselves equally to the causes of the disease. It appears from this calculation, that the risk is between seven and eight times as great for persons above the age of 50, as it is for persons between the ages of 15 and 30.

One practical inference from the preceding facts is, that before the question of contagion is settled, the charge of cholera patients should be entrusted to persons in the prime of life.

IV. INFLUENCE OF PREVIOUS HEALTH ON MORTALITY.

The previous state of health has also great influence on mortality in cholera. We have already stated, that of the 160 cases of cholera, 15 were sent from the Dreadnought, and occurred there in patients admitted for other complaints; the remaining cases were from vessels in the river, and occurred in persons who may be supposed to have been previously healthy.

The following Table exhibits the relative mortality in these two classes.

	From the Dreadnought.	From Vessels in the River.	Total.
Cases . .	15	145	160
Died . .	11	82	93
Recovered .	4	63	67

Of the 4 from the Dreadnought who recovered, 2 were discharged from the Dovor well or convalescent; the remaining 2 returned to the Dreadnought to be treated for their former complaints.

It will be seen from the Table, that, in persons previously healthy, the proportion of deaths to recoveries was 82 to 63, or rather less than 4 to 3; while in patients who came from the Dreadnought, the proportion of deaths to recoveries was 11 to 4, or 3 to 1, nearly.

The greater mortality in the cases from the Dreadnought cannot be ascribed to their having happened at a more unfavourable period of the epidemic, or in persons more advanced in life; these cases were distributed through the months of May, June, July, August, and September, in nearly the same proportions as the other cases of cholera; and five, or one-third of these patients, were above 40, which is very nearly the proportion of persons above 40 in the other cases. The greater mortality in the cases from the Dreadnought must, therefore, be attributed to the bad state of health of these patients when seized with cholera.

V. DIFFUSION OF THE DISEASE.

The cases of cholera that occurred in October 1837 were confined to the Dreadnought; none occurred in any other vessel in the river. In 1832, on the contrary, the disease was diffused in a remarkable manner; of the 160 cases admitted into the

Dovor, in that year, 15, as we have said, came from the Dreadnought ; 3 came from the Thames, Dublin steamer : and two from each of the ten following vessels : City of Londonderry, Huntcliff, Trent, Courier, Thomas, Frances Charlotte, Zephyr, Mariamne, Regent, Eneighton ; making, in all, 38 cases : of all the other cases, 122 in number, not more than one came from any one vessel.

The following Table exhibits the dates at which the several cases occurred in those vessels which supplied more than one case :—

Thames. July. Aug. Sept. 9. 23. 10.	Londonderry. May. July. 24. 5.	Huntcliff. May. 25, 28.	Trent. June. Aug. 22. 1.
Courier. July. 7, 21.	Thomas. August. 19, both.	Frances Charlotte August. 22, 28.	Zephyr. August. 25, 28.
Mariamne. Aug. Sept. 28. 1.	Regent. September. 21, 21.	Eneighton. December. 13, 20.	

There is another circumstance, interesting from its bearing on the question of the contagion of cholera, connected with the history of the Dover during this period.

Three nurses and one of the medical attendants lived on board ; other medical men, four in number, were in daily attendance ; examinations after death

were made in almost every fatal case ; there were generally several persons present at these examinations, which were conducted in an ill-ventilated cabin, where all the dead bodies, often 4 or 5, were placed ; yet, not one of these persons, medical men or nurses, took the disease.

In the early part of 1833, on the subsidence of the epidemic, the *Dovor* was laid up. In the course of that year, nine persons, 8 patients and 1 of the nurses, died of cholera, in the *Dreadnought* ; two of these patients were admitted affected with cholera : the rest for other complaints. The cases of recovery during that year were not recorded.

In 1834, in consequence of the reappearance of cholera, the *Echo*, an old steam-boat, was fitted up as a Cholera Hospital, and stationed, as the *Dovor* had been, in the river at Deptford ; and 36 cases, of which 12 proved fatal, were received there between the 10th of August and the 14th of September. No cases were admitted into the *Dreadnought* during that year, and two cases only occurred there ; the first in a patient, who was attacked on the 15th of August, four days after admission, and immediately removed to the *Echo* ; the second in the captain's servant, a girl of 19, who never entered the wards ; she was seized on the 30th of August, and died in the *Dreadnought* on the 31st.

The following Table exhibits the cases in the *Echo*, distributed, according to the age of the patients, into certain classes, and the number of deaths and recoveries in each class.

	AGES.					Total.
	15—20.	20—30.	30—40.	40—50.	50 and upwards.	
Cases .	10	13	3	5	4	35
Deaths .	1	2	2	3	3	11
Recoveries	9	11	1	2	1	24

It will be seen from this Table, that the disease in 1834 was not only less widely diffused, but that the individual cases were milder than in 1832.

In 1834, 11 in 35, or less than 1 in 3, died ; in 1832, 93 in 160, or more than 4 in 7, died.

VI. INFLUENCE OF AGE ON RECOVERY.

The cases in 1834 exhibit, in a more striking manner than those in 1832, the influence of age on recovery.

Twenty-three of the patients were between the ages of 15 and 30, and of these, 3 only, or about 1 in 8, died ; while of 12 who were above 30, 8, or two-thirds, died ; and of 4 whose ages exceeded 50, 1 only recovered. The age of this person was fifty-two.

VII. INFLUENCE OF AGE ON LIABILITY TO THE DISEASE.

The preceding Table, like the corresponding one for 1832, shows that, for ages above 40, the liability to the disease increases with age. Of these patients, 9 in 35, or 1 in 4, were above 40 ; while of sailors

generally, 1 in 5 are above 40: 4 in 35, or 1 in 9, were 50, or upwards; while only 1 sailor in 18 is above the age of 50.

The cases in the *Echo* do not exhibit, like those in the *Dovor*, a mortality varying with the period of the epidemic; in the first half of the cases, 5 proved fatal; in the last half, 6.

We have seen that the first epidemic lasted from February 1832 until the month of January following. In 1834, the first four cases occurred, in the nights of the 5th and 6th of August, all in men (lumpers,) employed in clearing the *Maitland* transport, lying off Deptford, which had just returned from —, and the crew of which had been discharged; and no case occurred in the river after the 13th of September, so that the duration of the epidemic was less than six weeks, a circumstance very unfavourable to the supposition, that the disease is contagious, or that it admits a long period of incubation.

In this epidemic, as in the former, the disease was very much diffused; with the exception of the cases from the *Maitland*, all the patients admitted into the *Echo* came from separate vessels; not more than one came from any one vessel.

In the *Echo*, none of the attendants took the disease; one of the nurses resided on board, with his wife and four children.

In 1835 and 1836, no cases of malignant cholera occurred in the river.

It is worthy of remark, that from the first appear-

ance of cholera in London, in February 1832, up to the present time, not one of the medical officers of the Dreadnought, or of the cholera hospitals connected with it, has taken the disease.