

Biology 1615

The Effect of Chloroquine Resistance in Africa

Introduction

The study I choose to examine and do a summary on was about how an antimalarial drug that has become resistant. Laboratoire de Paludologie in Dakar Senegal did the study in two ways, Population-based Studies and Hospital-based studies. The Population-based study was conducted in three different locations. The first area was Mlomp, a rainforest environment. The second location was Niakar and lastly, Bandafassi.

The antimalarial drug is called Plasmodium falciparum a strain of Chloroquine. In 1970's resistant strains became apparent; it was the first line treatment for uncomplicated malaria. According to the article in the 2000's it was still the most commonly used treatment in hospitals (Trape 12). Since the resistance has been observed other first line treatments have been introduced including sulfadoxine-pyrimethamine but there are complications with this treatment as well. This study was done to observe the rise of Chloroquine resistance in Senegal and the mortality rates due to the resistance to the antimalarial drug.

Materials and Methods

The main material that they used to begin their study was published literature about two based studies, population-based and hospital based. They researched through the data to either conclude there was monitored malaria specific mortality or an increase of recorded Chloroquine resistant cases. They utilized the published literature to determine the study areas of the data and the dates of emergence of Chloroquine resistance.

Results

This study conducted two types, population-based and hospital-based. There was a measured study process. The malaria specific mortality in children before, during and

after the resistance became apparent. The data was recorded beginning in 1990, 1992 and 1993. The population-based study's results were first. In Mlomp there was high percentages of Chloroquine resistance at 36% in 1991 and 46% in 1995. I assume this resulted from the perfect environment of malaria carrying mosquitos in the rainforest. This aided in the high levels of resistance to Chloroquine. In the second location, Niakar the data showed the lowest levels of antimalarial drug resistance. It was noticed in children under 10 years old and that it doubled from 4.0 to 8.2 per thousand every year in the two study periods, from 1984 to 1991 and from 1992 to 1995. The last location studied, Bandafassi that had higher percentages. This is data was mainly based upon the rural location and limited access to health care. Children under the age of 5 years old had risen from 4.2 to 11.4 per thousand every year in the two time periods.

The hospital-based studies in Malawi showed results of children under the age of 5 that more than doubled. The percentages of deaths stayed at about 5%. The second location in Tanzania reported changed in malaria morbidity and mortality from 10% in the 1960's to 23% in 1985. From Congo-Kinshasa to Nigeria, there were significantly higher levels of Malaria related mortalities, hospital admissions and convulsions in children reported. The problems were anything from lack of antimalarial drugs, Chloroquine resistance to complications from the Chloroquine strain such as anemia. The final study they reported in this article was from Kenya where it compared Chloroquine effectiveness to Sulfadoxine-pyrimethamine. The data showed that children that received Chloroquine were more at risk of dying than those that received Sulfadoxine. All these results from all these locations about Chloroquine led to the article's Discussion of Chloroquine resistance.

Discussion

This article researched, performed studies and generated results that all contributed to the conclusion that “the emergence and spread of Chloroquine resistance has had a dramatic public health impact in Africa” (Trape 14). They came to the belief that there were two factors of the impact of Chloroquine resistance. The first was that there was very little data on perspective mortality studies and the second was that these studies showed that in the first few days, patients showed improvement even though they remained parasitemic (parasites in the blood). Finally, they acknowledged the potential mortality from malaria especially in patients living in high malaria endemic areas.

Works Cited

Trape, Jean-Francois. "The Public Health Impact Of Chloroquine Resistance In Africa." *The American Society of Tropical Medicine and Hygiene* 64.1,2 (2001): 12-17. Print.