



Vaccination and blood sampling acceptability during Ramadan fasting month: A cross-sectional study in Conakry, Guinea



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ABSTRACT

Introduction: There are few data on the acceptability of vaccination or blood sampling during Ramadan fasting month in Muslim countries. This could impact vaccination campaigns, clinical trials or healthcare during Ramadan.

Methods: Using a semi-structured questionnaire, we conducted a cross-sectional study on 201 practising Muslims and 10 religious leaders in Conakry, Guinea in the wake of the recent epidemic Ebola epidemic. Acceptability of vaccination and blood sampling during Ramadan were investigated as well as reasons for refusal.

Results: Vaccination was judged acceptable during Ramadan by 46% (93/201, 95% CI 0.40–0.53) of practising Muslims versus 80% (8/10, 95% CI 0.49–0.94) of religious leaders ($p = 0.11$). Blood sampling was judged acceptable during Ramadan by 54% (108/201, 95% CI 0.47–0.60) of practising Muslims versus 80% (8/10, 95% CI 0.49–0.94) of religious leaders ($p = 0.19$). The percentage of participants that judged both blood sampling and vaccination acceptable during Ramadan was 40% (81/201, 95% CI 0.34–0.47) for practising Muslims versus 80% (8/10, 95% CI 0.49–0.94) for religious leaders ($p = 0.048$). The most common reasons for refusal of vaccination or blood sampling were that nothing should enter or leave the body during Ramadan (43%), that adverse events could lead to breaking the fast (32%), that blood should not be seen during Ramadan (9%) and that the Quran explicitly forbids it (9%).

Discussion: Although most Muslims leaders and scientists consider that injections including immunization and blood sampling should be authorized during Ramadan, many Muslims in our study judged vaccination or blood sampling unacceptable when fasting. Widely available recommendations on healthcare during Ramadan would be useful to inform Muslims.

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1. Introduction

Ramadan is the ninth month of the Islamic calendar and for Muslims worldwide a month of fasting. From dawn to sunset during Ramadan, Islam prescribes that Muslims must refrain from consuming food, drinking liquids or smoking. The general rule is that nothing should enter the body during the days of Ramadan month. Medical exemptions exist and the ill are allowed to take their treatment and eat if fasting is incompatible with their medical condition. These exemptions are most often granted after consulting local religious leaders. However, many Muslims with medical conditions insist on fasting during Ramadan. A multicenter international survey in 12,914 patients with diabetes showed that as many as 43% of patients with type 1 diabetes and 79% with type 2 diabetes fasted during Ramadan [1]. Less than 50% of these patients changed their insulin or oral antidiabetic drugs dose [1]. While diabetes is the most studied disease during Ramadan this has been observed in other diseases, such as chronic obstructive pulmonary disease [2] or cirrhosis [3].

Overwhelming evidence now proves that immunization through vaccination is one of the most successful and cost-effective health interventions. This makes vaccination a public health priority, as outlined by the World Health Organization (WHO) Global Vaccine Action Plan 2011–2020 [4]. Low-income countries are particularly concerned with rates of immunization that are still 15% lower than in high-income countries for common vaccines such as diphtheria-tetanus-pertussis or measles vaccines [4]. In some countries, measles is still the leading cause of death among children under the age of five. Many countries belonging to the Organization of Islamic Cooperation are low-income countries, such as Afghanistan, Guinea or Nigeria among others. Most of these countries have been identified by WHO as countries with low to very-low rates of vaccination coverage. In Somalia for example, it is estimated that only 30–40% of children are vaccinated against the six major childhood diseases [5]. In Guinea, estimates of vaccination coverage against diphtheria-tetanus-pertussis among children are between 50% and 60% [6]. Religious objections to immunization have been identified in various religions for a long time [7–9] but data about Islam [10], especially during Ramadan, are scarce. The second medico-religious international conference on health and Ramadan, bringing together Islam experts and Muslim scientists and physicians, took place in 1997 in Istanbul to try to define consensual guidelines [11]. According to the guidelines issued in this conference, any therapeutic or diagnostic injection (intravenous, subcutaneous or intramuscular) is allowed during Ramadan [11].

The most widespread epidemic of Ebola Virus Disease (EVD) began in 2013 in West Africa and continued for over two years [12]. The outbreak began in Guinea in December 2013 and then spread to Liberia and Sierra Leone. The consequences of Ebola epidemics in the region are difficult to estimate but are judged catastrophic. Many actors were involved in the response to the Ebola crisis which mobilized accepted and innovative approaches. Clinical trials of vaccines during this epidemic played an important role in preventing further spread of the infection [13]. These trials reflected an early consensus that research would be an important part of the response [14]. Clinical trials had to take place rapidly so that the Ebola vaccines safety and efficacy data needed to obtain approval might be obtained before the beginning of new epidemics.

During the preparation of one of these clinical trials, called Partnership for Research on Ebola. Vaccination (PREVAC), in Guinea, we needed to know if vaccination and blood sampling could be carried out during 2016 Ramadan month. This was a crucial point for the success of this clinical trial in a country where approximately

85% of the population is Muslim [15]. As vaccination before dawn or after sunset seemed impractical, we needed to know if we could vaccinate and sample blood to monitor vaccine efficacy and tolerance in daytime during Ramadan. Although vaccination during Ramadan has been allowed by Istanbul conference experts, we found no data or studies on the real-life acceptability of vaccination during Ramadan in Muslim countries. To answer this question in Guinea, a multidisciplinary team of physicians and anthropologists working in the PREVAC consortium carried out this survey. The objective of this study was to ascertain if vaccination and blood sampling were acceptable during Ramadan fasting month in Guinea, a Muslim country.

2. Methods

2.1. Study design

We conducted a cross-sectional study on two different populations: religious leaders namely Imams and muezzin, and practising Muslims with no formal religious responsibilities. An Imam is the worship leader of a mosque and Muslim community. The muezzin is the person appointed at a mosque to recite and lead the call to prayer for every event of prayer and worship in the mosque. Both have important and influential positions in Muslim communities. We decided to study these two populations as we wanted to collect the opinion of local religious leaders but also of practising Muslims who would constitute the majority of people involved in a vaccination campaign or in a clinical trial. We used a quantitative approach to assess acceptability of vaccination and blood sampling during Ramadan and a qualitative approach to describe the reasons and conditions for acceptance or refusal.

2.2. Data collection

Data were collected during the month of February 2016 in Conakry, Guinea. Ramadan began on June 6th and ended on July 6th in 2016. The PREVAC clinical trial was expected to begin on May or June 2016, thus inclusions were expected to take place during Ramadan. We chose the neighborhood of Nongo to realize this study as it was the expected place of the PREVAC clinical trial site at the time. Nongo is a popular neighborhood in Conakry with more than 19,000 residents.

We randomly selected a sample of mosques from the Nongo neighborhood and approached religious leaders by going directly to the mosques and asking to meet the Imam and muezzin. Information was collected during individual meetings with religious leaders. For the second group of practising Muslims we conducted individual meetings with people in Nongo. Investigators chose a sample of well-known meeting places in the neighborhood of the future site of PREVAC and approached people randomly asking if they would like to participate in a survey. Gathering places included markets, meeting points and bus stops. We chose this community-based approach to achieve a representative sample of Muslims. We assumed that going only to the mosque could lead to a bias towards the most practising Muslims.

A team of 5 West African anthropologists conducted all the interviews over a 2 weeks' period. Interviews were conducted in French or in local languages. We chose West African investigators to conduct the interviews to minimize answers being biased by mistrust towards outsiders. In the context of the recent Ebola crisis, it was difficult to judge which ways a Caucasian investigator could influence Guinean answers on their religious practices and vaccination. The investigators had been specifically trained for this study with 4 senior anthropologists from the PREVAC study. An interview guide, written and reviewed by the PREVAC

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