Isolation and characterization of Foot and mouth disease virus in Nigeria for possible vaccine development

By

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Introduction

FMD is endemic in Nigeria and must part of sub-saharan Africa

Four of the seven FMD serotypes (types O, A, SAT 1 and SAT 2) are prevalent

In Nigeria the outbreaks of type O and SAT 2 were suspected to be linked with viruses isolated in Sudan
Introduction: Contd.

- FMD epidemiology in west Africa and Nigeria in particular is complex and effort to control the spread of the virus in this region are complicated because of

- Nonexistent of border control

- The unrestricted movement of nomadic Fulani’s across the countries
Introduction: Contd.

• Poor reporting system and response to disease outbreaks

• Lack of epidemiological data and current genetic characterization of the circulating field viruses and their relationship to vaccine strains been used by some few farmers

• Lack of effective vaccination programme in place
Objectives

• To establish the circulating FMD serotypes and topotypes in Nigeria for vaccine production

• To understand the complex epidemiology of FMD in Nigeria

• To improve livestock production by reducing mortality due to FMD
Materials and Methods

• Samples were collected from suspected outbreaks across the country and also cluster points

• Samples were also submitted from the neighbouring country for analysis

• The following samples were collected: bovine (epithelial tissues = 79 serum = 1631 probang = 200) porcine (serum = 270)
Materials and Methods Cont.

• Epithelial tissues were prepared as 10% homogenate

• ZZ-R cell line was supplied by Friedrich-Loeffler-Institute, Germany

• The following tests were carried out on some samples: NSP and RT-PCR
## Results

<table>
<thead>
<tr>
<th>Species/Type of sample</th>
<th>Number of sample tested</th>
<th>Type of test used</th>
<th>Number negative</th>
<th>Number positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bovine Epithelial tissue</td>
<td>5</td>
<td>RT-PCR</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Bovine Serum</td>
<td>1441</td>
<td>NSP</td>
<td>405</td>
<td>1036</td>
</tr>
<tr>
<td>Porcine serum</td>
<td>270</td>
<td>NSP</td>
<td>260</td>
<td>10</td>
</tr>
</tbody>
</table>
challenges

• Lack of reagents and required equipments
• No restriction of cattle movement in region
• Lack of effective regional co-ordination on surveillance and vaccination programmes
• Poor funding of FMD research and training of personnel
conclusion

• To control FMD in the region it is important to understand the complex epidemiological relationships that are occurring added to the unrestricted movement of animals.

• Effective implementation and vaccination program will require characterization of currently circulating field isolates and continued monitoring to ensure that the vaccine is protective
Thank you for listening