Prevention of sylvatic human rabies with massive rabbits prophylaxis

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SUMMARY

- Vampire bat rabies is enzootic in the Peruvian Amazon River Basin. Hematophagous bat bites to humans are everyday events among populations in the Amazon Basin.
- Condomancu Province, at Amazonas Department in Peru, was the source of most of the sylvatic rabies cases in the Americas from 2007 to 2011.
- Amazonian indigenous populations are at high risk for the disease because their lifestyle and limited access to post exposure rabies prophylaxis.
- In 2011, Peru implemented the Plan of Massive Rabies Pre-Exposure Prophylaxis (Pre-EP) for high rabies risk communities in the Amazon region, the Plan considered the application of cell-culture vaccines to all population in the provinces of Condomancu and Bagua.
- By 2012, human rabies cases in Amazonas Department, dropped from approximately 20 children annually to only 2 adults, those two cases had refused to get Pre-EP during the vaccination campaign at the end of 2011.
- From this experience 3 more regions of Peru joined the Plan, resulting in 90,877 persons immunized in the Peruvian Amazonian region to date.
- In 2015, a human rabies outbreak in a different part of the Peruvian Amazon basin was responded with a massive rabies post exposure prophylaxis for the affected towns and Pre-EP for the neighboring ones.
- While no other intervention tools, are available for rabies control in hematophagous bats, and bat bites continue as a common event in high risk areas for sylvatic rabies, massive rabbits prophylaxis appears as the solely effective intervention to prevent rabies deaths.

BACKGROUND

- Persistence of human rabies outbreaks due to vampire bat transmission through bites in the Amazonas department was evident since 1977.
- Traditional outbreak response used nervous tissue vaccine for people regarded bitten. Never covered >30% of populations, leaving 80% of them susceptible.

Pre-EP INTERVENTION

- In 2011, a MoH decision to intervene susceptible population in Amazonas lead to the Massive Rabies PreEP Plan, targeting all population in the Condomancu and Bagua provinces initially, and later extended to other risk areas.
- The plan was justified by persistent human rabies outbreaks in children, and vampire bat bites statistics from MoH and collaborative research with the CDD, that demonstrated high rates of exposures among all population, characterizing the Peruvian Amazon Basin as a very high risk area for sylvatic rabies.
- A MoH decree was issued, a vaccine donation of HDCV Rabies vaccine was accepted, and funds for obtaining PVCV were authorized.
- As a coincidence Peru MoH started a decentralization process, giving autonomy to Regional Health Offices.

Evidence that justifies intervention

- Success of the intervention was observed in 2012, when only 2 human cases were reported in Condomancu, both were adults that refused PEP.
- Evidence indicated rabies circulation and bite exposures persisted but no cases were observed among the population that received PEP.
- The Pre-EP intervention was extended in 2013 to three more Departments with high sylvatic risk areas.
- The current intervention does not cover yet all Peruvian Amazon Basin, because some departments with not previously reported rabies outbreaks don’t feel it is necessary to join the Plan.
- Current rabies epidemiology, with new sylvatic rabies areas and increased colonization of the tropical forest justifies continuation and expansion of the intervention.

PEP OUTBREAK RESPONSE

- In May 2015, a human rabies outbreak in Loreto, was reported in an location with not previous rabies reports at the Curacay River. Only 3 human deaths occurred.
- Presentation and setting was a typical vampire bat rabies outbreaks as observed in other areas of the Amazon Basin.
- Rabies PEP was administered to all population in the locations that reported human rabies deaths.
- Pre-EP was indicated for the population of neighboring towns.
- PVCV was used. RIG was not available at the time of intervention.

CONCLUSIONS

- Success of the intervention was observed in 2012, when only 2 human cases were reported in Condomancu, both were adults that refused PEP.
- Massive rabbits prophylaxis is the only effective tool available to prevent human deaths due to sylvatic rabies transmitted by hematophagous bats among the Amazon Basin human populations.
- The massive rabbits prophylaxis strategy can be useful for populations other than the Amazon Basin, with similar barriers to access rabbits biologics and are continuously exposed to rabbits.

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