REVIEW ON THE USE AND MISUSE OF TRYPANOCIDAL DRUGS

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Introduction

- Trypanocidal usage remain the main method of controlling Animal Africa Trypanosomiasis in Sub Saharan Africa(Mbewe *et al.,* 2015)..
- The fight against the disease is managed by vector control (estimated to cover only <2%) of tsetse-infested areas (Richard *et al*., 2021) and parasite control or both (Chitanga *et al*., 2011)
- No vaccine for AAT is available (Morrison *et al*., 2024)
- Privatization of most of veterinary services have made it easy to access Trypanocidal drugs and other veterinary drugs.
- This has resulted in rampant misuse of trypanocidal drugs (Chitanga *et al*., 2011).

Trypanocides

- Curative- applied to eliminate all target parasites e.g *Diminazene aceturate*
- Prophylactic- sustain lethal concentration in the serum lasting several months e.g Isometamidium chloride *(Ogolla et al., 2024).*
- *'Diminazene aceturate and Isometamidium chloride* are used as *'*Sanative pair'-in case resistance has been recorded (Grace *et al*., 2005; Ngumbi *et al*., 2017)
- *Homidium Chloride,* and *Quinapyramin sulphate*-against Surra (Kennedy *et al.*, 2020)
- An estimate of 35-50million doses of trypanocidals are used annually in Africa (Mbewe *et al*., 2015; Ungogo and Koning (2024))

- Rural communities mostly affected by the disease mainly rely on the use of trypanocidal drugs (Chitanga et al., 2011).
- The predominant farmers led method for disease management is the use of trypanocidal drugs (Richard *et al* 2021)

- In LMICs private veterinary professional services are not affordable for most farmers.
- Government veterinary professional are limited due to shortage of resources such as transport and few in number (Kasozi *et al*., 2023).
- Due to this challenges farmers are forced to diagnose and treat their animals.
- Studies have shown 73,33% in Kenya (Okello *et al*., 2022), 66.1% in Uganda (Kasozi *et al*., 2023) and 90% in Cameroon prepare and administer drugs Kasozi *et al*., 2022)

Trypanocidal source

- Most farmers obtain drugs from authorized and unauthorized sources:from street vendor (Dagnachew et al., 2017 ;Tekle et al., 2018; Ekra et al., 2024).
- The source of drugs is perceived to directly influence the outcome of the treatment.

- Tekle *et al*., (2018) stated that 58% of the farmers believe that treatments are more likely to be successful when the drugs are sourced from authorized sources than from unauthorized.

Treatment

- Self-treatment is a common practice among the farmers (Mbewe et al., 2015; Tekle et al., 2018; Richards et al., 2021)

- Moreover, AAT is reported to be higher (27.23%) in cattle owned by respondents who reported to treat their animals than in those whose animals are treated by a veterinary professionals (1.4%) (Okello et al., 2022).

Frequency of treatment

- The number of treatments over a year reflects the magnitude of trypanosome challenge in an area.
- The study in South Western Ethiopia indicates that 85% of the respondents treat their animals more than seven times in a year ((Dagnachew *et al*., 2017; Tekle *et al*., 2018).
- In Lambwe valley of Kenya up to 50% of farmers use the drugs frequently 4-8 times per year per animal (Okello *et al*., 2022).
- This contravenes FAO recommended guidelines on trypanocidal usage:
    - Up to a maximum of four times in a year
    - Integrate treatment with other control measure (Mbewe *et al*., 2015)

Administration

- Unprofessional handling of drugs has been reported.
- Trypanocides are administered together with ordinary antibiotics to treat sick animals
- Study by Roderick *et al*., (2000) noted that farmers give a single injection rather than a course of treatment.
- Study in Tanzania have shown that 75% of farmers use an intravenous (IV) route to administer the drugs rather than the recommended deep intramuscular (IM) route (Ngumbi and Silayo, 2017).
- Others opted for both IM and IV administration concurrently

Drug quality

- There are counterfeit products of trypanocides circulating in the market.
- The study done in Northern Togo on *Isometamidium chloride* and *Diminazene diaceturate* indicate that there are high proportion of counterfeit drugs in the market.
- 40% of non compliant samples contain lower amount of active ingredients compared to concertation specified on package (Tchamdja *et al*., 2016).
- Non compliant sample were higher from unauthorized outlets compared to the authorized markets (Tchamdja *et al*., 2016).

Drug quality

- Non compliant products compromise the efficacy of the treatment and boost development of Trypanocide drug resistance (TDR).
- TRD have been reported in 17 countries in Sub Saharan Countries (Mbewe *et al*., 2015).

Conclusion

- There is need to enforce national/Regional regulations on the quality control, supply and utilization of veterinary drugs.
- Multistakeholder approach to address the improper use of all veterinary drugs.
- Sensitize farmers on the importance of adherence to manufacturers instruction .

Thank you

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