Trends in Medical Research

ISSN 1819-3587

Academic Journals Inc.

www.academicjournals.com

Trends in Medical Research 2 (4): 215-216, 2007
ISSN 1819-3587

On Zebras and Horses in Clinical Medicine

Dear Editor,

Postgraduate training in clinical medicine has a part that is almost unshared with many professions. The servitude attachment to a mentor is expected but the key difference is the apprenticeship that is similar but so unique for every trainee. There is almost always a unique experience. One that impacts my practice is the adage of the zebra and horses in medicine-when you hear hoofs, think of horses, not zebras! or Common things occur more commonly. This adage is quite helpful in medicine because clinical decision is usually based on a Bayesian logic that assigns an a priori' probability ,which proposes that the symptom and sign complex of a patient points to a particular illness and then seeks to confirm this probability with the results of investigations based only on identifying the particular illness. However the predictiveness of such investigations depends on the background prevalence of the illness in the given population. The only catch is that hoofs do sometime turn out to be zebras. Clinical zebras may cause what I call clang of emotion, elation or guilt, especially when it costs a life. The guilt is that zebras may be quite interesting when discovered but one would not want to think of having accepted someone's suffering as only interesting, even if able to adequately hide this feeling.

My first big zebra occurred when I was in medical school in the 80 s. We had a patient with all the symptoms, signs and laboratory findings that were consistent with primary liver cell carcinoma. He was managed by respected professors. After we lost the patient, autopsy revealed that he had hepatic tuberculosis, which could have been cured! My second zebra was more dramatic. As a resident in obstetrics in Cairo, we had a patient with fever in pregnancy and being Nigerian, I thought malaria! However, malaria had already been eradicated from Egypt and the patient had never traveled outside Egypt. Understandably my chief resident reminded me that I was in Egypt, with one of those unfathomable smiles of chief residents. We arrived at PUO (Pyrexia of Unknown Origin) after batteries of tests turned out inconclusive results, but reluctantly confirmed the case as malaria fever after the baby was born prematurely, though he survived and we almost lost the patient. In this case plasmodium falciparum was our zebra!

Medical zebras may be the cornerstone of preventing or controlling pandemics. H5N1 (avian influenza virus) is a zebra that is particularly worrisome. Now, we are comfortable with the horses such as rhinoviral common cold and the Influenza virus of seasonal human flu. However, H5N1 has learnt the art of crossing the species barrier, trapping plasminogen to cross tissue barriers and causes a 50-60% mortality rate in man (Hideo and Yoshihiro, 1998; Beigel *et al*., 2005). Luckily it is as yet unable to cross from man to man. The rule is that it will mutate and when it learns to move from man to man (as it most likely will) we expect a pandemic because of an infectivity ratio that can be as high as 1:9 (Hideo and Yoshihiro, 1998; Beigel *et al*., 2005). As HIV most likely crossed the species barrier in Africa, H5N1 appears to have done so in China, hence, it is now considered a horse in China. It may very well acquire its dreaded transmissibility from man to man elsewhere in the world. It may be worthwhile thinking of this zebra elsewhere in the world when we hear the hoofs of flu.

The case fatality rates for medical zebras are expected to be higher than that of horses. It can be argued that the next big treats to humanity are the zebras of medicine, not the horses. In a world increasingly confronted with emerging infections, perhaps the clinical adage and actions should be changed to when you hear hoofs, think of horses but keenly watch out for zebras!

REFERENCES

Beigel, J.H., J. Farrar, A.M. Han, F.G. Hayden, R. Hyer and M.D. de Jong, 2005. Avian influenza A (H5N1) infection in humans. Writing Committee of the World Health Organization (WHO) Consultation on Human Influenza A/H5. N. Engl. J. Med., 353: 1374-1385.

Hideo, G. and K. Yoshihiro, 1998. A novel mechanism for the acquisition of virulence by a human influenza A virus. PNAS., USA., 95: 10224-10228.

Bello, Shaibu Oricha
Department of Pharmacology,
College of Health Sciences,
Usmanu Danfodiyo University,
Sokoto, Nigeria