



For Love of the Horse

In-Depth Analysis and Interpretation of Blood Chemistry

Chemistry report dated 03/23/2009

Max – Sandra Wilson

By Joseph Thomas, Ph.D. 4/1/2009

The most salient pattern in Max's blood chemistry report is his elevated serum/blood glucose level in relationship with his elevated serum insulin level; this is the definition of type 2 diabetes with compensatory hyperinsulinemia (high serum insulin). My article "the Immune Laminitis Connection" would be very important for you to read Sandra, if you have not already done this. There are three striking elements within Max's **CBC and differential**: his percentage of segmented neutrophils is seriously elevated and when examined with his very low percentage of lymphocytes a pattern emerges of an ongoing bacterial infection. We can safely assume that this bacterial infection is occurring in his hoof that had the laminitic event because the dead laminae tissue cannot be effectively "digested" and "eliminated" due his depleted immune system. Max's "absolute" (a measure of quantity) lymphocytes are dramatically low, enough so that his total white blood cell (WBC) count is well below the reference range, not a common occurrence. This is an indication of an immune system incapable of dealing with the ongoing massive infection (hoof abscesses with bacterial infection) and an inability to produce enough mature lymphocytes. Max's deplete immune system is a function of two etiologies; i.e. IR and even more so diabetes has a consequence of a depleting an immune system and the steroid medications. Research has demonstrated that steroids deplete leukocytes (WBC) for quite some time now. In the above mentioned article I explain how the immune system and specific leukocytes become depleted and within my article "The Missing Link" is an explanation of how steroids can reduce immune function, elevate serum glucose, and seriously increase the risk of a laminitic event.

Another consequence of IR and diabetes is one or more of the categories of anemia. Max has not reached this place yet but his total RBC, MCV, and MCH are approaching the extent of their reference ranges (RBC the lower and MCV, MCH the higher). I repeat that Max is not at this point yet and we can avoid the anemia by moving him back to the early stages of IR and out of the diabetes diagnosis.

I am absolutely certain that Max is at the early exponential diabetes rise and one can follow this by looking at the pattern trends in his blood chemistry report; e.g. immune function, approaching anemia, and his acid-base equilibrium what I refer to as the biochemical electrical neutrality equation which includes sodium, potassium, TCO₂ (bicarbonate), and chloride. The elements of greatest importance here are Max's TCO₂ approaching the lower limit, chloride nearing the upper limit, and sodium just about at the upper extreme. When calculating the electrical neutrality equation what can be seen is an *approaching* metabolic acidosis; IT IS NOT PRESENT, and does not have to be by using an aggressive dosage of my EMS solution. To explain a metabolic acidosis would require a good understanding of biochemistry and a short book, suffice it to say that this would represent a dramatic lowering of pH (acidic) with consequences we want to avoid. MAX IS NOT THERE at the moment but the movement towards this acidotic state is present in his blood chemistry report.

This is a wonderful time to begin a serious program of my herbal solutions; the following are my recommendations:

Recommendations:

EMS @ 4 scoops X 3

Total Immune Health @ 4 scoops X 3

Liver Support @ 4 scoops X 2

If Max is not moving very well in three weeks then introduce Hoof Ailments @ 4 scoops X 2. Stay in contact with Angela so that she can help you and Max through his recovery process. Follow-up blood work in six months.