**Health Effects Associated with Aflatoxin**

Student Name

Course Code

Lecturer Name

Date

**Adverse Effects Associated with Aflatoxin**

Aflatoxin are secondary metabolites of fungi aspergillus. It occurs mostly on many stable foods and course broad range of detrimental health effects in animal and humans. As a consequence maximum related levels have been legistrated in many countries. More strategies are required in developing countries to coup rising cases of aflatoxin, this is because most people purchase food staffs from local market without proper compliance of food safety rules. Risk management and risk communication is an effective tool to coup with this situation. Africa has been performing by using rules established by WHO to coup with consumption of highly contaminated foods. It is clear that even consumption of law level contaminated foods can course health implication due to higher consumption rate. Recent developments have highlighted the growth of immune suppression coursed by aflatoxin exposure. Using the limited data available on this both effects a first step has been taken to incorporate them to a risk assessment (shephard, 2008)There are many adverse effects coursed by aflatoxin hazard health including, liver cancer, immunosuppression on pathogenesis, stunted growth, effects on maternal health and many more.

**Effects of Aflatoxin Induces Immunosuppression on Pathogenesis**

The H9N2 air has been isolated from chicken and reported many times from various countries (Alexernder,2003) although the H9N2 influenza virus was reported to be of law pathogenicity in chicken (Bano et al.,2003) it has been incriminated in several out breaks since its first isolation (mo et al.,1998). More recently it was isolated in association with wide spread and serious disease problem in commercial chicken in Iran and Pakistan (Alexender, 2000). In Egypt it seems that H9N2 has been circulating in an understandable manner since a serological evidence of H9N2 spread through Egypt was recorded in 2009 (Afifi et al.,2013).successively H9N2 air has been isolated from a broiler breeder farm found in northern part of Egypt (moneim et al.,2012). Natural toxins produced by molds have threatened safety which has coursed severe loose in poultry industry (El miniavy et al., 2014.)

**Stunted Growth**

Aflatoxin is dietary contaminant that is hepathegenic and immunotoxic and course growth reduction in animals. For example pathogenic exposure in West Africa is known to be high. A test was carried out where by two hundred children sixteen to thirty seven months of age we recruited from four villages two with high and two with lower aflatoxin exposure rate the research showed that the major Couse of aflatoxin was maize since the children used to consume porridge. According to Hunsa (2004) aflatoxins are metabolites that contaminate dietary stable food such as maize and ground nuts.

Aflatoxins are proven hepatocasinogens in many animal species. In populations in Africa and southern Asia there are increased risks of stunted growth due to aflatoxin exposure (Hall and wild,1984) aflatoxin Couse retardation and impairment of immune function in animal hence stunted growth (Gong et al, 2004)

**Maternal Health**

Pregnant women and their developing fetus are venerable to multiple environmental insults including aflatoxin. Study show that aflatoxin exposure during pregnancy courses adverse pregnancy outcomes including impaired foetus growth.in animals investigated aflatoxon exposure may course prematurity or pregnancy loose. The foetus could be affected by maternal aflatoxin exposure through maternal systematic inflammation. Impaired placenta growth or elevation of placenta cytokines effects of aflatoxin could possibly mediate maternal anemia, growth restriction, fetal loss and preterm birth. In developing countries pregnant women are needed to provide stronger evidence for the role aflatoxin in advance pregnant outcomes. (smith et al, 2017)

**Carcinogesis**

Aflatoxin is said to cause carsinogesis, it has been found in milk of animals which are said to have consumed aflatoxin contaminated foods. This products from the animals were found to be casinogenic. In the test which was carried out shows that diet given to animals which has aflatoxin contains cyclopropenoid fatty acids which promote casinogenicity (sunhuber at el, 1774).

**Liver Damage**

Liver cirrhosis is characterized by fibrosis and nodule formation in the liver due to chronic injury. A significant number of cases are said to be from sub Saharan Africa where there is a large exposure of aflatoxin. Aflatoxin is known to cause hepatocellular carcinoma which share common signs with liver cirrhosis. Recent studies show that significant increase in risk of aflatoxin

**Liver Cancer**

Liver cancer is a public health problem ranked fifth frequently cancer worldwide with several deaths. Developing countries are more affected by this disease than developed countries. There are many risky factors including exposure to aflatoxin. Recently a united nation organization (codex) requested quantitative risk assessment to evaluate risk caused by aflatoxin contaminated foods. The results were that liver cancer is among the top diseases caused by aflatoxin (henry at ei, 1999). Over 30 years there has been extensive efforts to reduce the risk liver cancer associated with aflatoxin. The results have been hindered by lack of adequate domestic data on aflatoxin intake. Excretion and metabolism in people as well as poor mortality statistics. This realities have reduced the effort to develop new technologies to access exposure status and risk for aflatoxin.

**Conclusion**

In conclusion aflatoxin has many adverse effects which have to be addressed. Health workers are support to work extra hard to come up with solutions to this aflatoxin menace. Wearer urged to ensure that food safety is maintained to reduce effects of aflatoxin. The government has to pump more resources to research institutes to enable proper research.

**Reference**

*Shephard, G. S. (2008). Risk assessment of aflatoxins in food in Africa. Food Additives and Contaminants, 25(10), 1246-1256.*

*https://www.tandfonline.com/doi/abs/10.1080/02652030802036222*

*Kimanya, M. E., Routledge, M. N., Mpolya, E., Ezekiel, C. N., Shirima, C. P., & Gong, Y. Y. (2021). Estimating the risk of aflatoxin-induced liver cancer in Tanzania based on biomarker data. Plos one, 16(3), e0247281.*

*https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0247281*

*El Miniawy, H. M., Ahmed, K. A., El-Sanousi, A. A., & Khattab, M. M. S. (2014). Effect of aflatoxin induced immunosuppression on pathogenesis of H9N2 avian influenza virus. Pak Vet J, 34(2), 234-8.*

*https://www.researchgate.net/profile/Hala-El-Miniawy/publication/260188485\_Effect\_of\_Aflatoxin\_Induced\_Immunosuppression\_on\_Pathogenesis\_of\_H9N2\_Avian\_Influenza\_Virus/links/562d301308ae518e3482492d/Effect-of-Aflatoxin-Induced-Immunosuppression-on-Pathogenesis-of-H9N2-Avian-Influenza-Virus.pdf*

*Gong, Y., Hounsa, A., Egal, S., Turner, P. C., Sutcliffe, A. E., Hall, A. J., ... & Wild, C. P. (2004). Postweaning exposure to aflatoxin results in impaired child growth: a longitudinal study in Benin, West Africa. Environmental health perspectives, 112(13), 1334-1338.*

*https://ehp.niehs.nih.gov/doi/abs/10.1289/ehp.6954*

*Smith, L. E., Prendergast, A. J., Turner, P. C., Humphrey, J. H., & Stoltzfus, R. J. (2017). Aflatoxin exposure during pregnancy, maternal anemia, and adverse birth outcomes. The American journal of tropical medicine and hygiene, 96(4), 770.*

*https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5392618/*

*innhuber, R. O., Lee, D. J., Wales, J. H., Landers, M. K., & Keyl, A. C. (1974). Hepatic carcinogenesis of aflatoxin M1 in rainbow trout (Salmo gairdneri) and its enchancement by cyclopropene fatty acids. Journal of the National Cancer Institute, 53(5), 1285-1288.*

*https://academic.oup.com/jnci/article-abstract/53/5/1285/93239*

*a risk factor for liver cirrhosis: a systematic review and meta-analysis. BMC Pharmacol Toxicol 21, 39 (2020). https://doi.org/10.1186/s40360-020-00420-7*

*Henry, S. H., Bosch, F. X., Troxell, T. C., & Bolger, P. M. (1999). Reducing liver cancer--global control of aflatoxin. Science, 286(5449), 2453-2454.*

*https://www.science.org/doi/pdf/10.1126/science.286.5449.2453*