INFECTION FATALITY RATE OF COVID19 – A LOGISTIC MODEL (DATTA JAYDIP)

ABSTRACT -

In this review one of the most important epidemiological parameter ie Infection fatality rate (1) is correlated with age of the population through a sigmoid statistics of Logistic model. The IFR is a special case of case fatality rate (CFR) . The CFR (1) is termed as the number of deaths due to symptomatic Covid infection within entire population per unit time . The IFR is a special case of CFR where number of deaths to be considered as total number of deaths due to symptomatic as well as asymptomatic infection within the same population per unit time .

DISCUSSION :

The data analysis of IFR vs Age of the population shows a significant correlation (r) of Sigmoid model (3-4) .The **dataset (2 , Table: 1)** are processed through mean analysis . Then this mean dataset is analysed by best -fit software like Curve Finder (v.1.4) of which Logistic regression shows a significant correlation coefficient (r) [$0 < r < 1.0$] with tolerable std.error (s) , Cov (Matrix) and residual table of the Parametric statistics . A part from regression analysis a PIE chart of the dataset is also shown as bellow. The sigmoid function results from the analysis can be represented as follow.

$$X (\text{Age}) = \text{Sigmoid } f [Y (\text{IFR})] = [a / (1 + b * \exp (-cx))] (1) \text{--Table(II) }$$

a , b , c are the coefficients obtained from best fit analysis .(**Table –III & IV**)

The equation (1) represents the desired model equation and the measure of a sigmoid probability .

(3,4) of fatality rate of Covid infection with age of the patients . A simplified Excell representation ie Pie chart also supports the sigmoid distribution .

CONCLUSION –The Fig (I) - Table (II,III,& IV) shows a significant fit of pre- processed dataset of Age Vs IFR. Naturally the Infection Fatality Ratio of Covid19 of the said population shows just a sharp- S - rise @ Age of 45 Yrs and the infection become more fatal after an old age of 70 for both symptomatic & asymptomatic patient (1-4) of the considered population.

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