

Therapeutics outcome of COVID-19 factors

Background:

the risk of death and hospital survival of COVID-19 are related to certain physiological and therapeutic factors

Statictical question:

What is the relationship between age and sex of patients hospitalized and the death outcome of COVID-19 in University Hospital of Antananarivo

Mechanistic question:

How does corticotherapy affect the outcome of COVID-19 in elderly patients (>50years)in University Hospital of Antananarivo

Acknoledgements: Michelle, Sophia, Santino and Gwen

RAMILISON Miroso ,University of Antananarivo

Statistical question

What is the relationship between age and sex of patients hospitalized and the death outcome of COVID-19 in University Hospital of Antananarivo

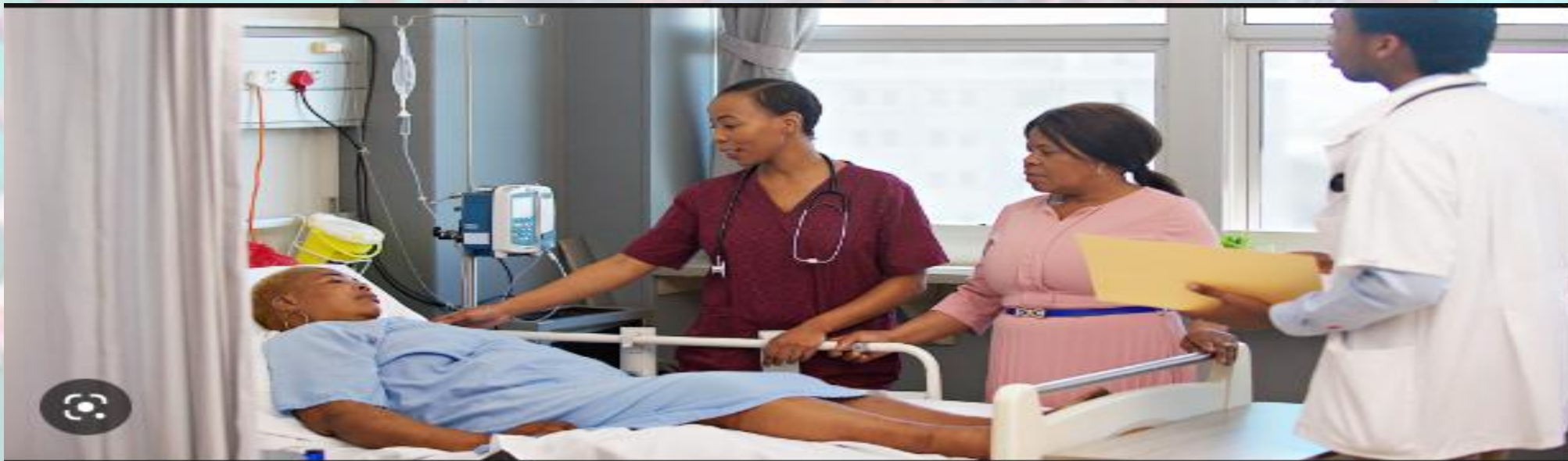
Response variable : Therapeutic outcome (death)

Predictor variable : age , sex

Family : « Binary »

Hypothesis : Risk of COVID-19 death increases with increasing age and male gender

R Code : `glmer (therapeutic outcome ~age +sex,family=« Binary »,data= dateform,(link=« logit »))`



Mechanical question

How does corticotherapy affect the outcome of COVID-19 in elderly patients (>50years)in University Hospital of Antananarivo

States:

S: Patients >50 years old

Ic+: Infected with corticotherapy

Ic-: Infected without corticotherapy

R: Recovered

Parameters:

b: aging rate

β : transmission coefficient of COVID-19

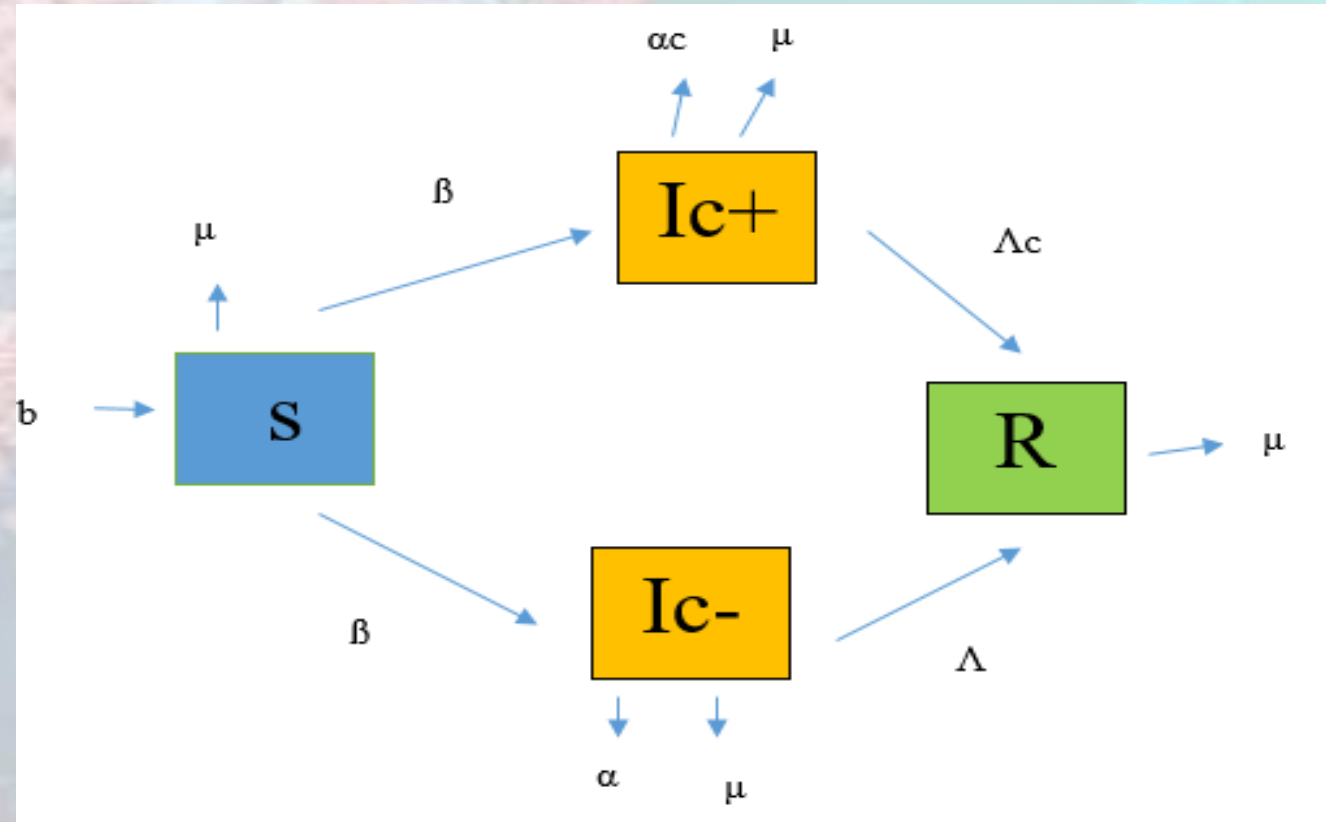
Λ_c : recovery rate with corticotherapy

Λ : recovery rate without corticotherapy

μ : natural mortality

α_c : death rate due to infection in patients with corticotherapy

α : death rate due to infection in patients without corticotherapy



Next steps

1. Collect data with registries of patients hospitalized of COVID-19 in University Hospital of Antananarivo
2. Use the statistics models with R code to check the hypothesis of risk of COVID-19 death with age and sex
3. Fit the mechanistic model with dataframe to predict increasing survival in elderly patients with corticotherapy against COVID-19

