

Book 1

Edition 2024 | English



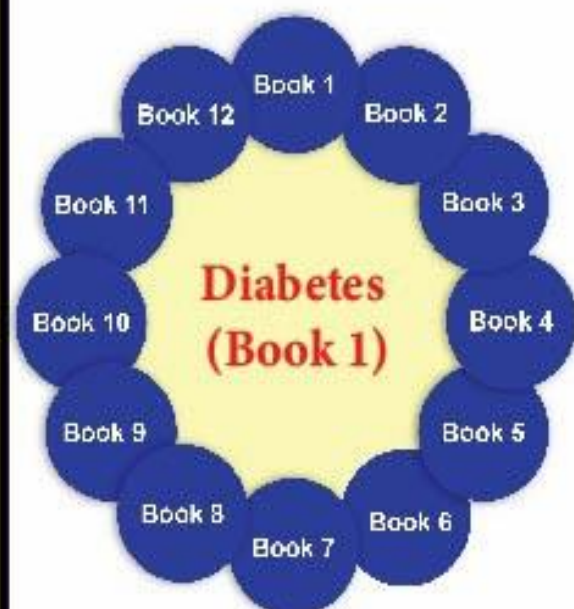
NEXT STEP LIVING LONGER BOOKS

Diabetes - Book 1

HIGH BLOOD SUGAR

IN 2021: No reason for kidneys to fail!!

Before 1921: Yes, You would have died.
(year of Nobel Prize for Insulin)



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CONTENT

Chapter 1

- 1** Introduction

Chapter 2

- 2** The Golden Principle in Management of high blood sugar (Diabetes)

Chapter 3

- 3** Diet and exercise are an integral part of high blood sugar management!

Chapter 4

- 4** Yes, Diabetes management can really reduce complications

Chapter 5

- 5** Today in 2020/2021 we have excellent medicines available

Chapter 6

- 6** There are dramatic advances in treatment of diabetes today in 2021

Chapter 7

- 7** Type 1 vs Type 2 Diabetes

Chapter 8


- 8** How do we decide less dose or more dose of medicines

Chapter 9

- 9** Early diagnosis and early treatment: an absolute necessity in 2021

Chapter 1

Introduction



Frederick Grant Banting

John James R. Macleod

- The Nobel Prize in Physiology or Medicine 1923 was awarded jointly to Frederick Grant Banting and John James Rickard Macleod "for the discovery of **insulin**" in 1916.

Chap1Fig1

Insulin was discovered in 1921 leading to a nobel prize. In 2021 we have 12 groups of medicines for medicine diabetes.

Think About It!

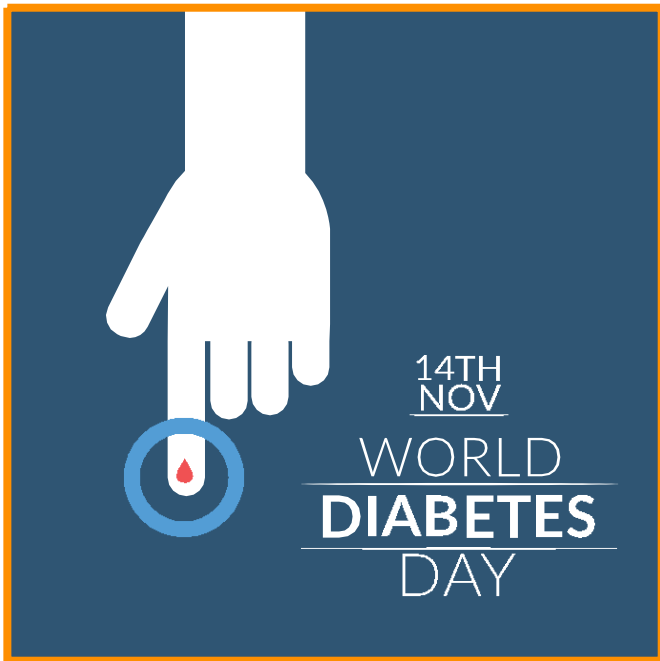
Before 1921

Every child who was born with Type 1 diabetes or lack of insulin would eventually die.

The discovery of insulin or should we say the discovery of insulin as a medicine has changed the history of diabetes and its treatment.

In 2021

We can now have a healthy life with functioning kidneys till very end!!

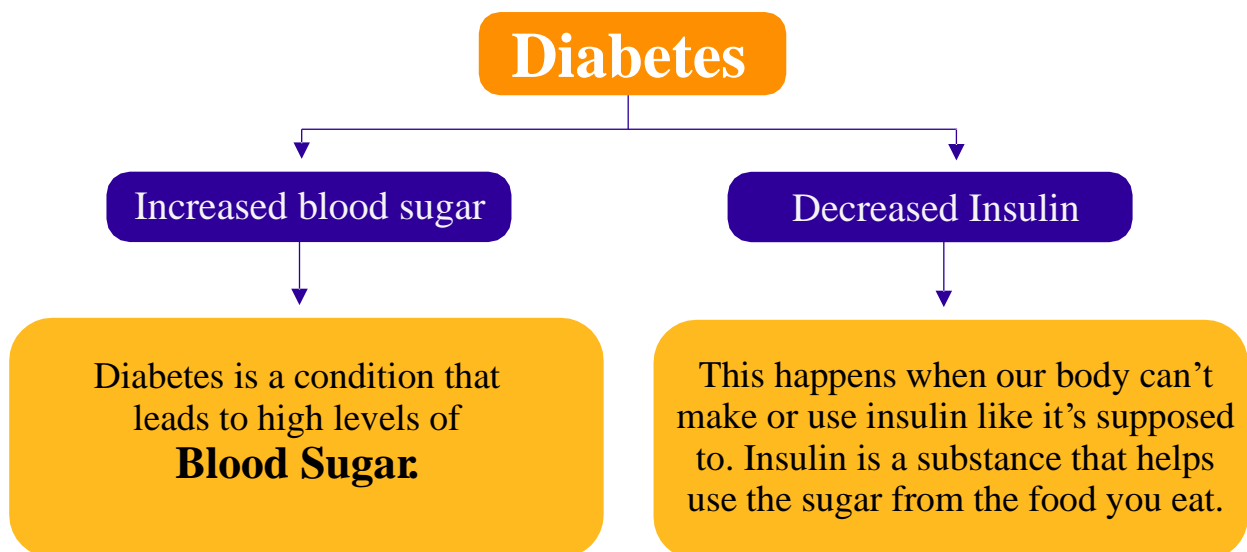


But yes, we have 12 to 13 different groups of medicines for high blood sugar.

The golden principle of the medicinal treatment of diabetes is that we start with one medication early in the course of treatment of diabetes.

We keep adding medicines as needed to control our blood sugar (along with diet & exercise)

Chap1Fig1



Chapter 2

The Golden Principle in Management of high blood sugar (Diabetes)

The golden principle of the medical treatment of diabetes is that Once we have high blood sugar (Diabetes) – exercise and diet management are needed life-long.

Together diet, exercise and medications – all will help!!

Risk of taking medications are minimal as compared to the benefits that we receive from these medicines!

1. We start with one medication early in the course of treatment of diabetes

Start with one medication

2. Targets for blood sugar control is decided by physician.

Decide Targets

3. Usual target is $\text{HbA1c} \leq 7$

$\text{HbA1c} < 7$

4. As youngish we are more, we want to keep blood sugar is close to 100mg

Blood sugar close to 100mg

Continued

The golden principle of the medical treatment of diabetes is that Once we have high blood sugar (Diabetes) – exercise and diet management are needed life-long.

5. Today in 2021 are several groups of excellent medicines are available:

a) which can bring down our blood sugar by different mechanisms of action.

b) As a golden rule, what we should start with one medicine if our blood sugar is not extremely high.

c) And as time goes on.
We can add a second medicine.

Start with one medicine, if blood sugar is not very high

Start with one medicine, Add a second medicine, if needed And add a third medicine, if necessary

d) Or we can even add a third medicine which works by a different mechanism.

Chapter 3

Diet and exercise are an integral part of high blood sugar management!

[Diet and exercise are an integral part of high blood sugar management!]

Purpose of medical management and medicines for diabetes is:

- **To manage our blood sugar**



Chap3F
ig1

-

- **As close to 100mg as possible**



Chap3F
ig2

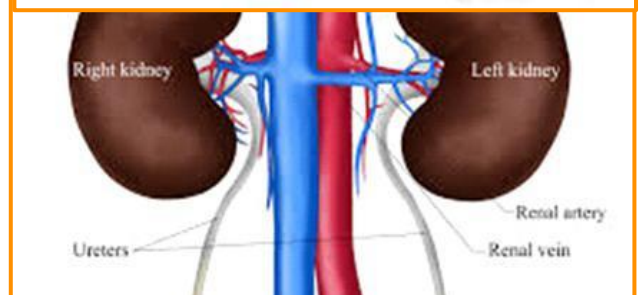
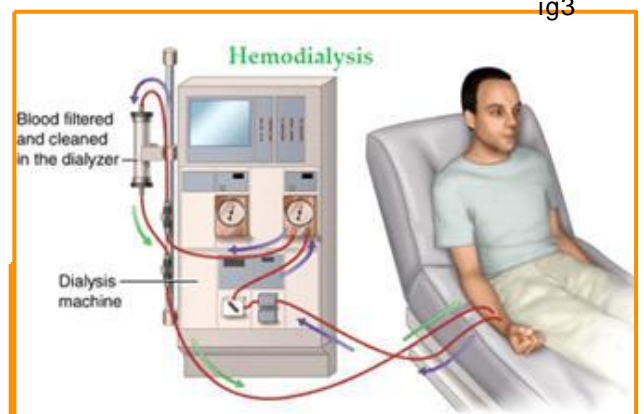
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- **And HbA1c < 7**

HbA1c

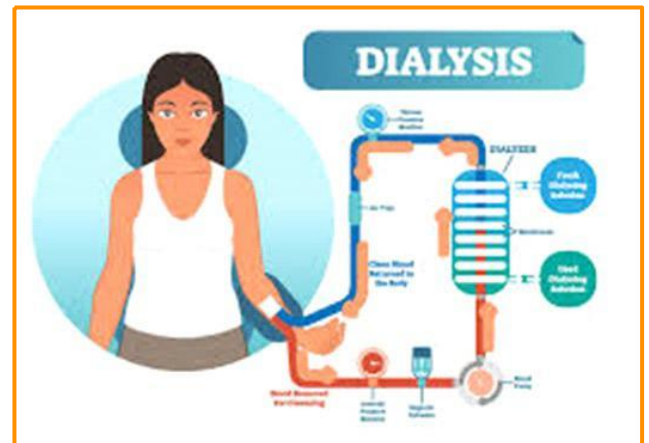
Chap3F
ig3

To prevent kidney failure



Chap3Fig4

And no dialysis



Chap3Fig5

Chap3Fig6

No heart attack (Diabetes is literally one of the reasons)



Chap3Fig7

No blindness (Diabetes is one of the reasons)



Chap3Fig8

No amputation of leg (Diabetes is one of the reasons)



Chap3Fig9

Chapter 4

Yes, Diabetes management can really reduce complications

If we manage diabetes from day one or even before we have actual diabetes (called prediabetes),
Complication are dramatically delayed by

20
years

or

30
years

or

40
years

Is it true?

✓ **Really Yes! it is True**

Chapter 5

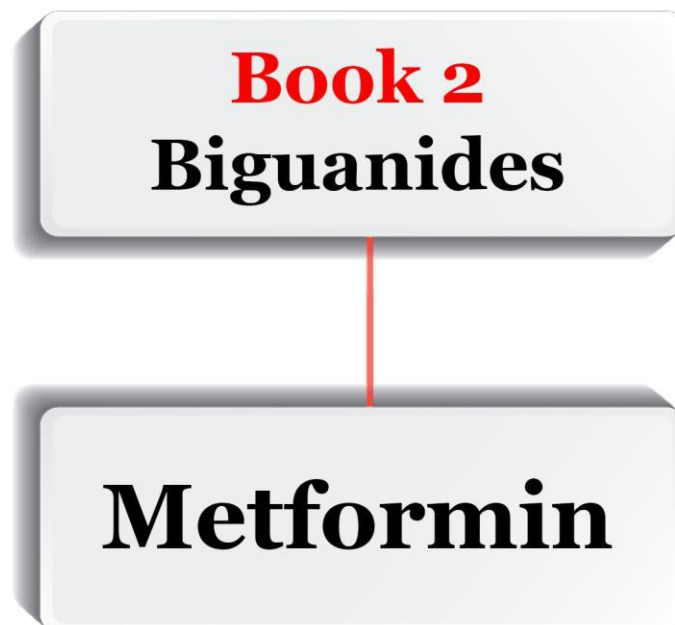
Today in 2020/2021 we have excellent medicines available

There are a number of medicines available in the market today for the treatment of Diabetes.

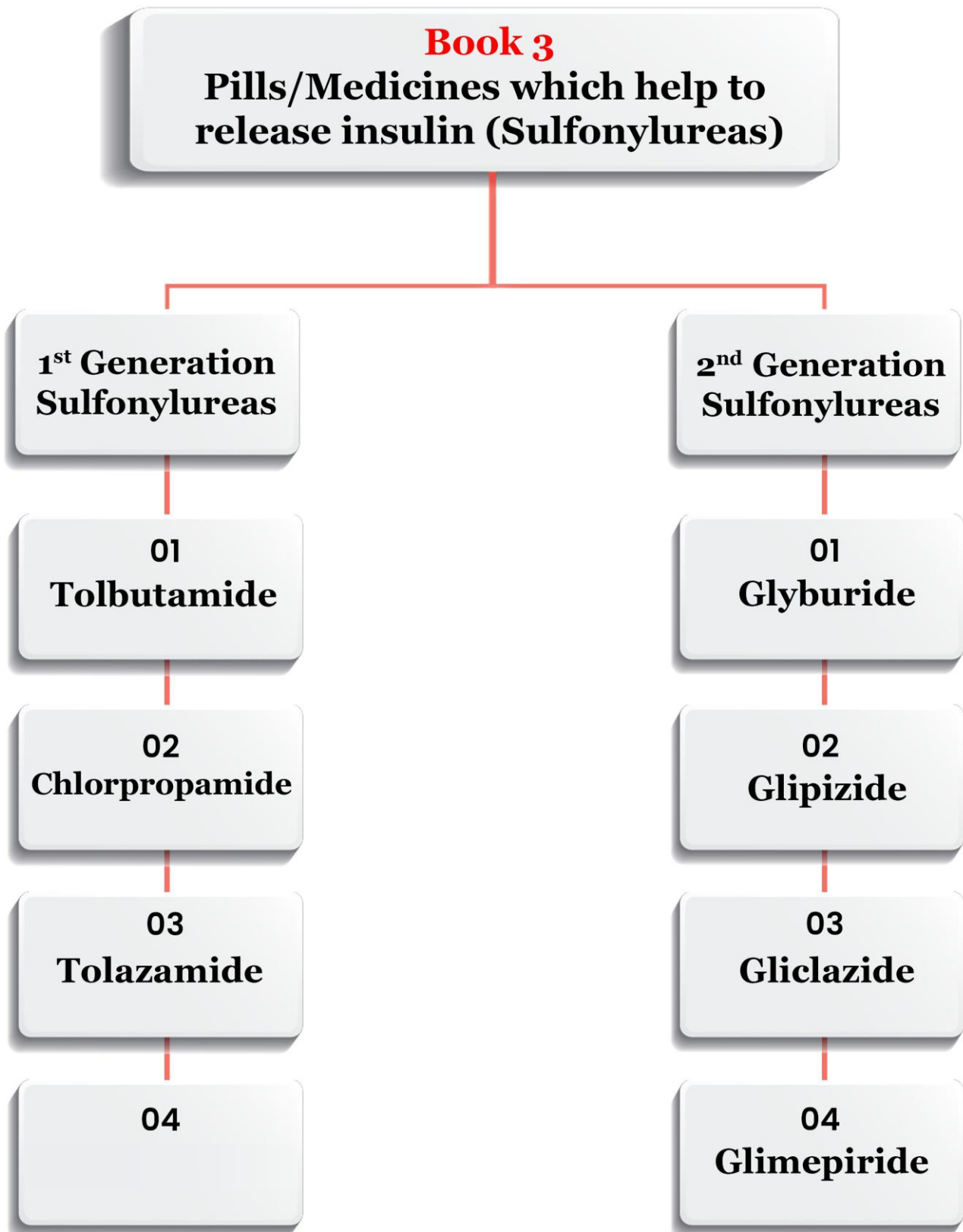
The main groups which these medicines belong to are:

Book-2 Biguanides

Metformin: The most famous and most used medicine and 1st medicine to start the treatment of diabetes.

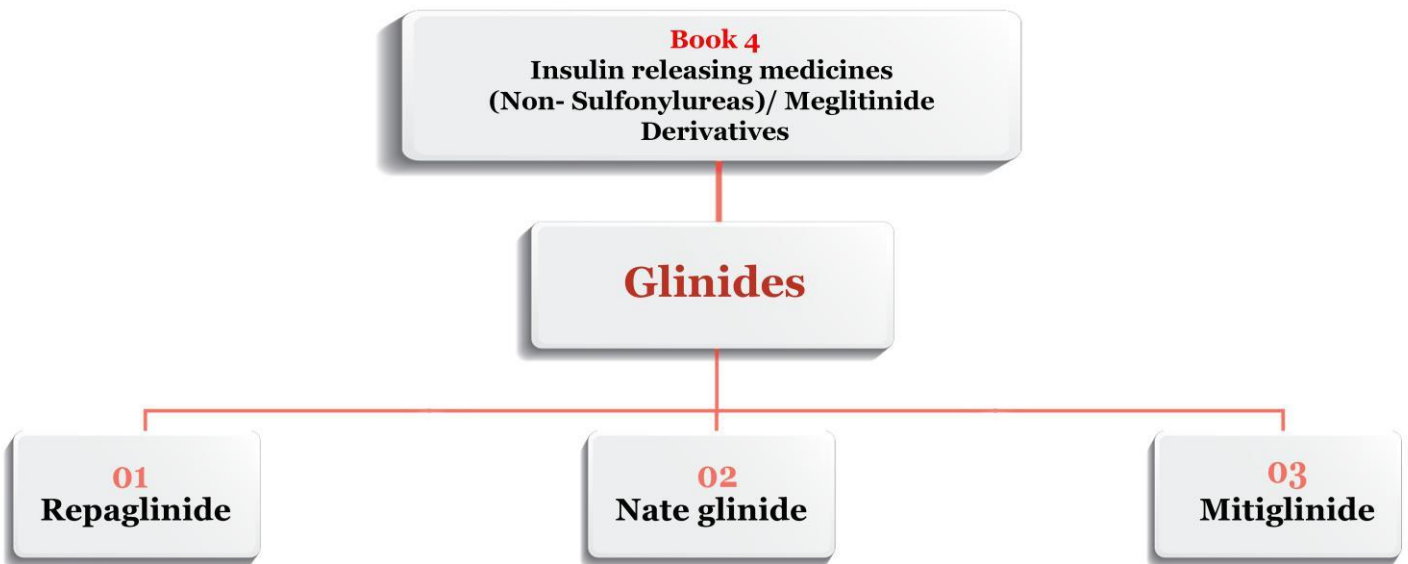


Book-3 Pills/Medicines which help to insulin (Sulfonylureas)

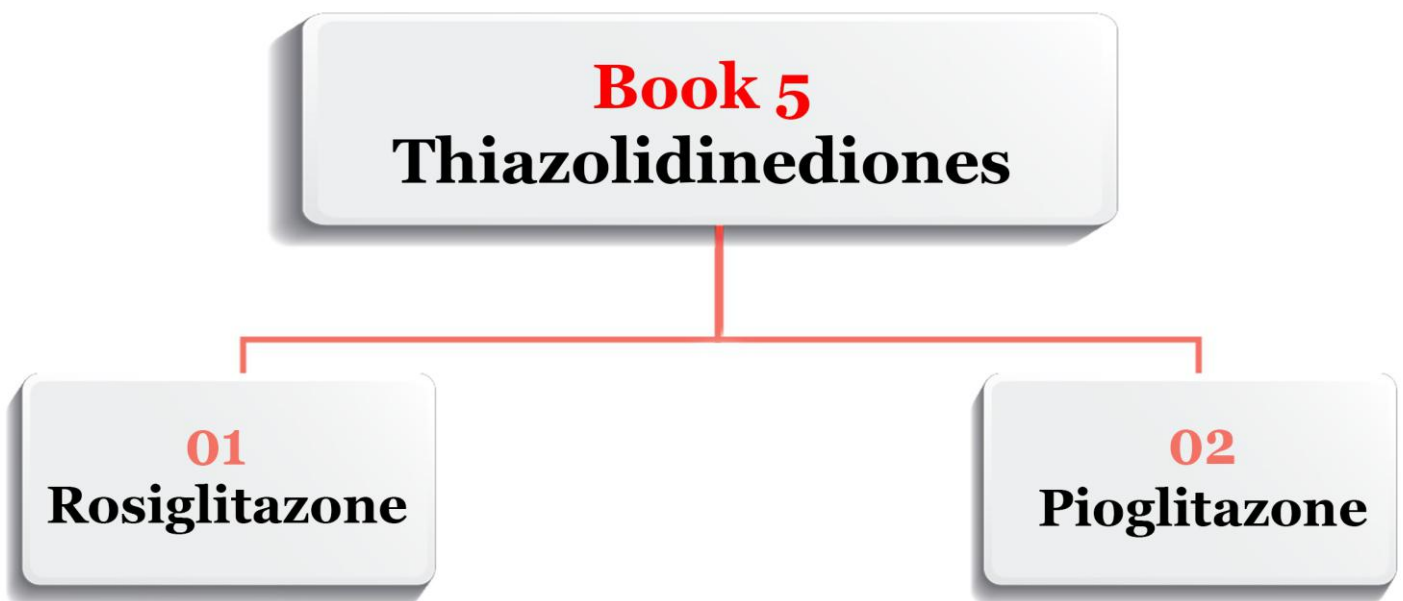


Acetohexamide

Book-4 Insulin releasing medicines (Non- Sulfonylureas)

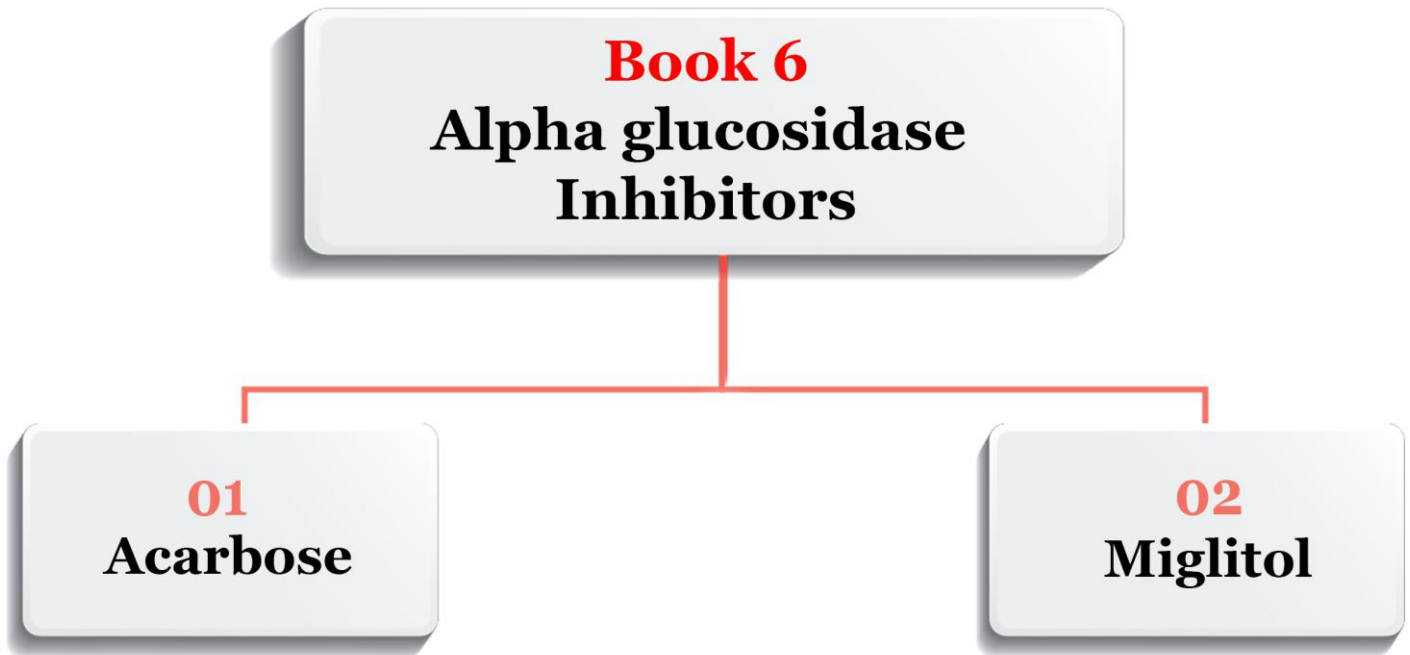


Book-5 Thiazolidinediones

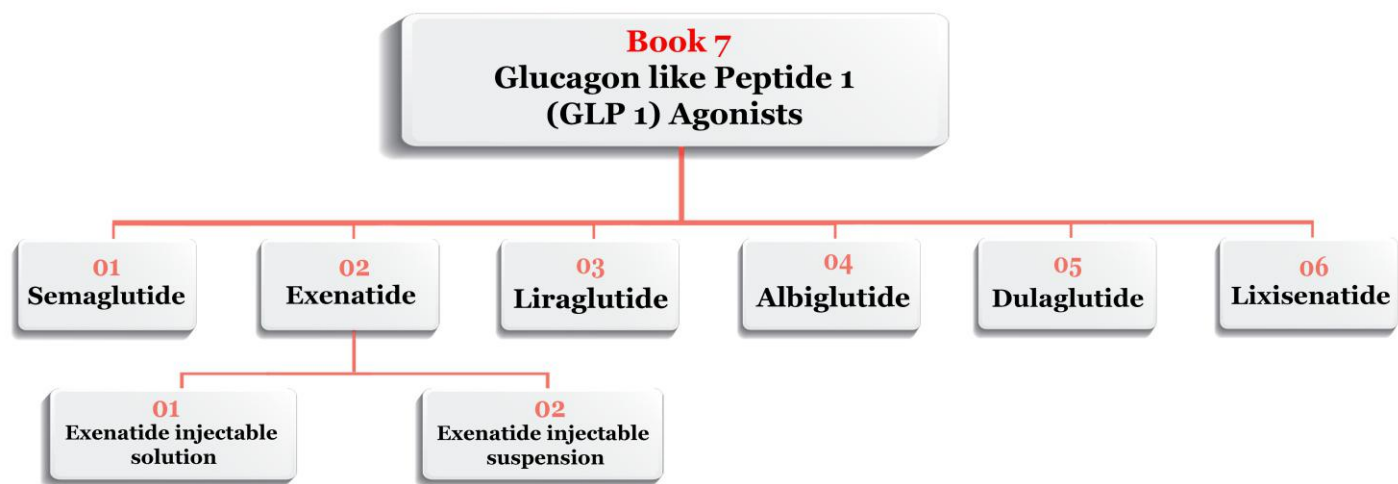


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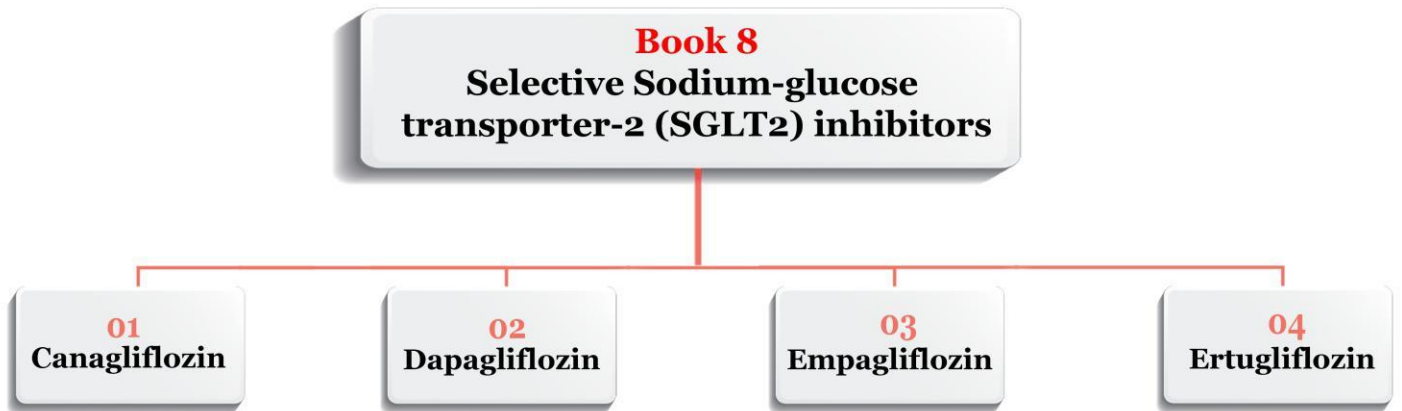
Book-6 Alpha glucosidase Inhibitors



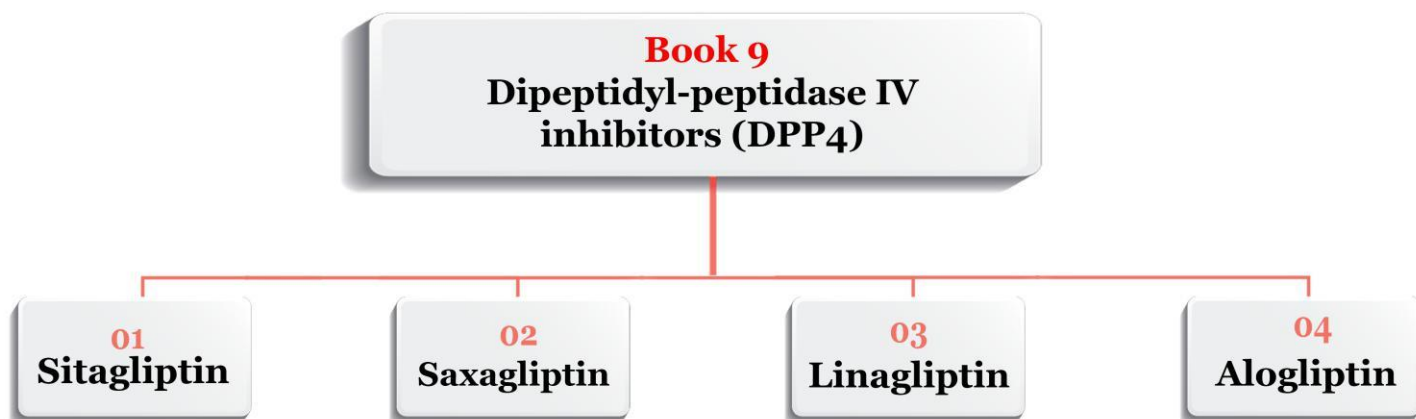
Book-7 Glucagon like Peptide 1 (GLP 1) Agonists



Book-8 Selective Sodium-glucose transporter-2 (SGLT2) inhibitors



Book-9 Dipeptidyl-peptidase IV inhibitors (DPP4)



Book-10 Amylinomimetic group

Book 10
Amylinomimetics

01
Pramlintide

Book-11 Bile acid sequestrants

Book 11
Bile acid sequestrants

01
Colesevelam

Book-12 Dopamine 2 agonist

Book 12
Dopamine 2 agonist

01
Bromocriptine

Chapter 6

There are dramatic advances in treatment of diabetes today in 2021

Think About It!

We are **NOT** perfect; we don't need to be. But we **CANNOT** quit trying either.

Every high sugar management prescription always includes:

1. Medicine(s),
2. Diet, and
3. Exercise

Without these, it is impossible to achieve our targets.

In our medical world, medicines can be given by

**By mouth/oral
medication**

or

**By Injection below
our skin
(very easy to learn)**



Chap6Fig1



Chap6Fig2

Chapter 7

Type 1 vs Type 2 Diabetes

Think About It!

We were always scared of needles and injection needs some degree of training so that it does not lead to any infection on the injected place. We have to follow the sterile techniques that do not lead to any infection of the injection sites.

Types of Diabetes

Yes, we do need management lifelong

Type I Diabetes

- We have to give insulin.
- No oral pills work
- At present, insulin only comes as an injectable.
- But technology/insulin pen are making it easier and easier

Type II Diabetes

- Our body does make insulin (but not enough insulin)
- In such a situation, (as time goes on) we can manage type 2 diabetes starting
- Initially with one medicine
- And then if needed by adding a second medicine or a third medicine

Chapter 8

How do we decide less dose or more dose of medicines

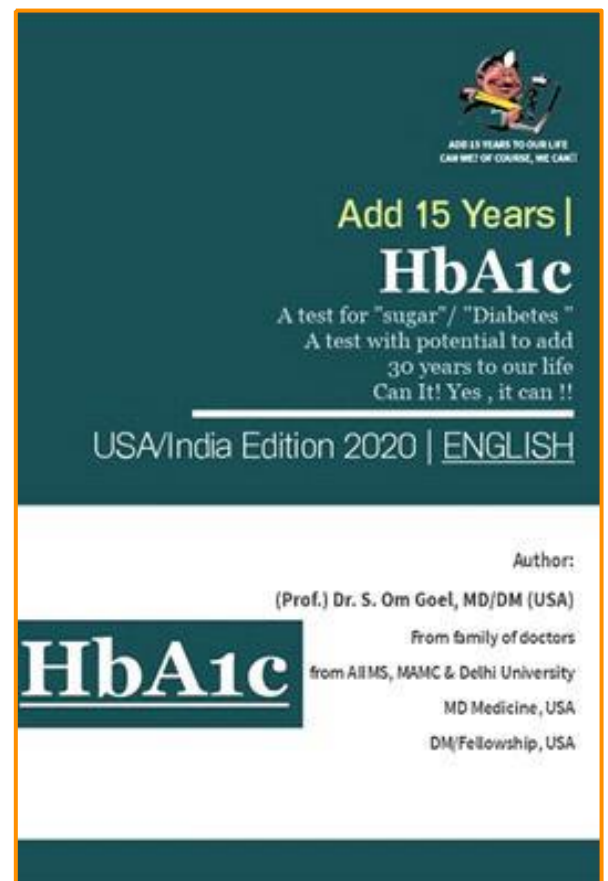
Think About It!

Our blood sugar changes all day based on

- *Our meals,*
- *Level of activity etc.*
- *HbA1c remains stable over three months.*

How do we decide less dose or more dose or combination of medicines?

I. We actually use HbA1c as our guideline for the treatment of diabetes.



Chap8Fig1

II. We set up a target for HbA1c in diabetic management and we want that the HbA1c always remains 7 or less than 7.

HbA1c < 7

III. If we met our target, we can lower the dose.

Start with one medicine, if blood sugar is not very high

IV. If our HbA1c is high, then we can give the increased dose or add a 2nd pill or add even a 3rd pill.

Start with one medicine, Add a second medicine, if needed And add a third medicine, if necessary

Chapter 9

Early diagnosis and early treatment: an absolute necessity in 2021

Think About It!

Every mom knows how her baby will start walking around in 1 year of age.

Every physician knows how to diagnose diabetes (called Prediabetes) year before you have any “symptoms”.

Actually, if we can diagnose Diabetes, even before it happens to us (called as Prediabetes), we can really delay complications as mentioned and it will be a very wise thing to do.

Most important thing we have to understand is that if medicines are taken early in the diagnosis of high blood sugar/diabetes then it can delay complications related to diabetes by



