This is My Summary
of the Missing part of
the Chapter from the
E-Learning Lecture . . .

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- Chronic complications of DM :
  - Microvascular complications
  - Macrovascular complications

Very serious, called Kidney, Eye, Nerves,
Brain, Heart, Extremities

...es's time, more than 10 years depending on adherence of the patients, depends on how much glucose in Blood

↳ if hyperglycemia all the time he will get the chronic complications

Microvascular, Macrovascular complications have reasons, include —

↳ Metabolites of glucose

one of glucose's Metabolites is Sorbitol, (1)

that may ppt. in

- Nerve
- kidney
- Artery ⇒ Mostly

↳ Hyperglycemia

when glucose level increases, it will bind in protein. (2)

Called glycoproteins "GHb's"

these glycoproteins are Steady

Circulation is full of proteins, hyperglycemia "it's chronic",

So..
glucose WILL bind with proteins forming glycoproteins.

↳ May ppt in Blood Vessles clinically ⇒ Atherosclerosis

Hub glycoprotein is viscuss, Present in the circulation,
it will go to the kidney for Filtration "Membrane",
with time it will reach a stage where it will finally Block "[illegible]" the kidney, causing ⇒ Diabetic Nephropathy

glycoprotein May ppt in Nerve

glucose ⟹ hyperglycemia ⟹ Metabolism (3)
Result in that Metabolism "free Radical"

Normally ⟹ there will be Anti-oxidents
but when talking about hyperglycemia
⟹ accumulation of free Radical damaging
the epithelial layer, capillary, Nerve

glycoproteins may also bind with platelets, (4)
preventing platelet aggregation ~~platelet~~
"prevents the binding of platelet with
another one
which is one of the cleft barriers
along side with fibrine.
as Result..
Possibility of Bleeding

* Microvascular :- → Eye
→ kidney
→ Neuropathy

Diabetic patients suffer Cataract, glaucoma.
thats due to production of Sorbitol in
kidney ⟹ so hyperosmolar pressure
in that area,
so as solution ⟹ water brought to
the eye "Cataract".
More water ⟹ hypervolemia ⟹ ↑ Volume
so ↑ pressure ⟹ glaucoma.

كل مرة لازم يفحص العين وإذا في
كلازم يشخص " كاتاركت "

(EYE) ↗

for kidney, Two problems :-
→ the presence of Sorbitol in
high amounts
→ glycoproteins

in years of Diabetes, accumulation of
glycoproteins sticks to the filter

Scanned with CamScanner

بقصد الـ Function of kidney ←

علشان مستوى الـ Creatine level عالي ، والعكس

الطبيعي the Main indicator of kidney function

0,7 - 1,1 ، لو 1,2 كده مشكلة

عند مرضى السكر ← 1,3 - 1,4 ..

I can't assume that diabetic patient suffers chronic kidney Disease for yet.
Cause it's stages ..

Diabetic patient with time May ~~before~~ suffer kidney failure, due to distruction of the filter.
So No elimenation of waste Products from Body → ~~diaphetesis~~. [dyalysis]

(kidney) 腎

Diabetes May also cause Neuropathy
"demyelination" of the Myline sheet
that increases speed of Nerve pulses

So..
in this case due to disfunction in the
distribution of pulses → loss of sensation

1) loss of pain sensation (covering of
~~glycoproteins~~ Nociceptor by glycoprotein)

2) Numbness, heat production in extremeties
due to No Normal circulation
(Neuropathy)

* Macrovascular Complications:-
  * Brain :-
    Due to accumulation / Vasoconstriction
    No Normal Blood Supply

also Cataract may occur due to the encephalopathy - "Accumulation of ulcer due to protein catabolism"

*Cardiovascular disorders:-
Most if not all diabetic patients suffer hypertension due to problem in blood vessles - Accumulation of glycoproteins ⇒ Atherosclerosis & Blood supply ⇒ hypertension

also from the prespective of Nerves system ⇒ impairment of Nerves effecting sympathetic / parasympathetic & cardiovascular disorder

*Extremities:-
these people suffer ulcer called foot ulcer - قرحة القدم
that's due to the fact that there is No Normal circulation - Blood supply

... the extremities → injur?:
or May Result from injury, No healing
due to upset of Nutty Blood supply
which is Main in ~~Blood~~ carry wound
healing

~~Also~~ ~~Blase~~

* infection:-

Due to ↓immune system, function of
hyperglycemia decreases the function of
Neutrophil the first cell works in the
innate immune system

لازم كل يوم ينظف الجرح، زي ما قلت عن
infection = ... ديناخر ال
. healing

* gangrene