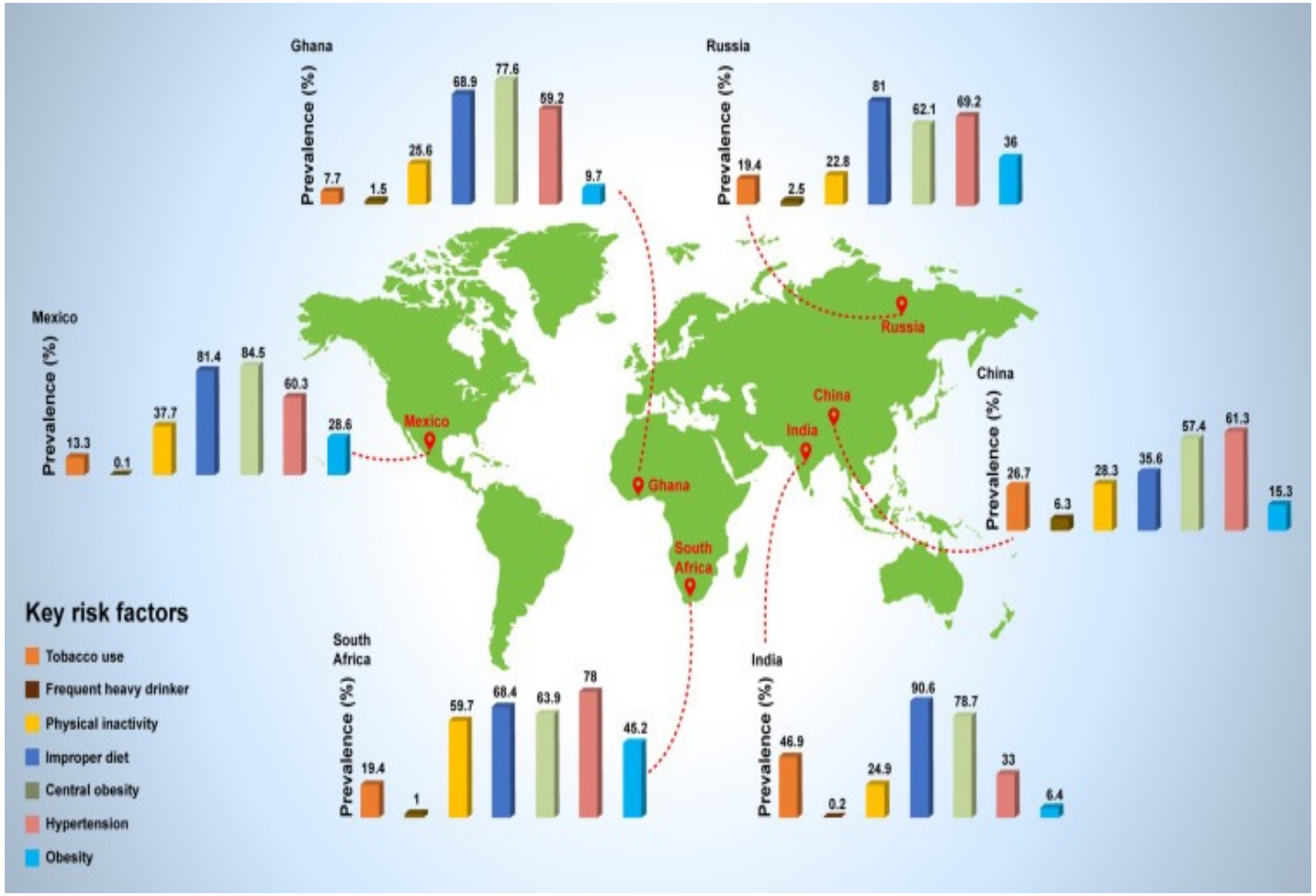
Lifestyle Intervention and Medication

Dr E Achiaka Irabor (FWACP-FM, MSc Developmental Psychology)

NCD's occur for 2 reasons: genetics and behavioural choices.1

Some of the behaviours implicated are show here.

Our impact as physicians is linked to how much we can arrange and assist our patients to modify these.



Content Overview

We will examine the reasons for using both pharmacotherapy and behaviour change (dual therapy) to manage NCDs

Then we will go more in-depth on this topic with certain NCDs of common occurrence.

We will end with clear guidelines on indications for dual therapy.

Objectives

At the end of this module, you are expected to achieve the following objectives:

A
Discuss the Indications for dual therapy with lifestyle medicine and medication.

B
Manage specific conditions with a dual approach.

C
Focus:
Hypertension
DM
Arthritis
Obesity
Insomnia

Pre-test

1. Patients often require some lifestyle modification recommendations to manage their presenting complaint.

Which one of the options below is correct?

a. Addictions to cigarettes are not amenable to lifestyle modification prescription.
b. Lifestyle modification prescriptions needs to written like a medication prescription.
c. Prescribing both medication and lifestyle changes in the same consultation hampers adherence.
d. The prescription of lifestyle modification is best given by counselling during the consultation.

Pre-test

2. Hypertension management is influenced by the stage of hypertension the patient presents with.

Which one of the statements below is correct?

a. Lifestyle modification alone is the mainstay of hypertension management in stage 1 disease.
b. Lifestyle modification for hypertension is straight forward and most often implemented by patients.
c. Lifestyle modification is all well and good, but antihypertensives are best prescribed once diagnosis is made.
d. Patients with diastolic blood pressure above 90mmHg are best started on medication management.

Pre-test

3. Type 2 DM requires a lot of lifestyle modifications as many patients with this diagnosis are overweight/obese and have other co-morbidities.

Which one of the statements below is correct?

a. A patient with T2DM and obesity require intense exercise prescription **only** if the Hb1Ac is less than 8%.
b. Glucagon like peptide-1 [GLP-1] analogs are indicated to help with weight loss.
c. Lifestyle modification needs to yield 2% weight loss before anti-diabetic medication can be commenced.
d. Medication side effects can be managed by balancing one medication against another.

Pre-test

4. Osteo-arthritis of the knee is associated with overweight and obesity hence the need for weight loss.

Which one of the statements below is correct?

a. Best practice recommends topical NSAIDs over oral NSAIDS for long term management of osteo-arthritis.
b. Most exercise is effective for weight loss and hence applicable to patients with osteo-arthritis.
c. The most effective pain control medication for osteo-arthritis is topical NSAIDs.
d. The patient should be initiated on an exercise programme even pain exist by controlling the pain with NSAIDS

Pre-test

5. Obesity and overweight can be managed with medication as well .

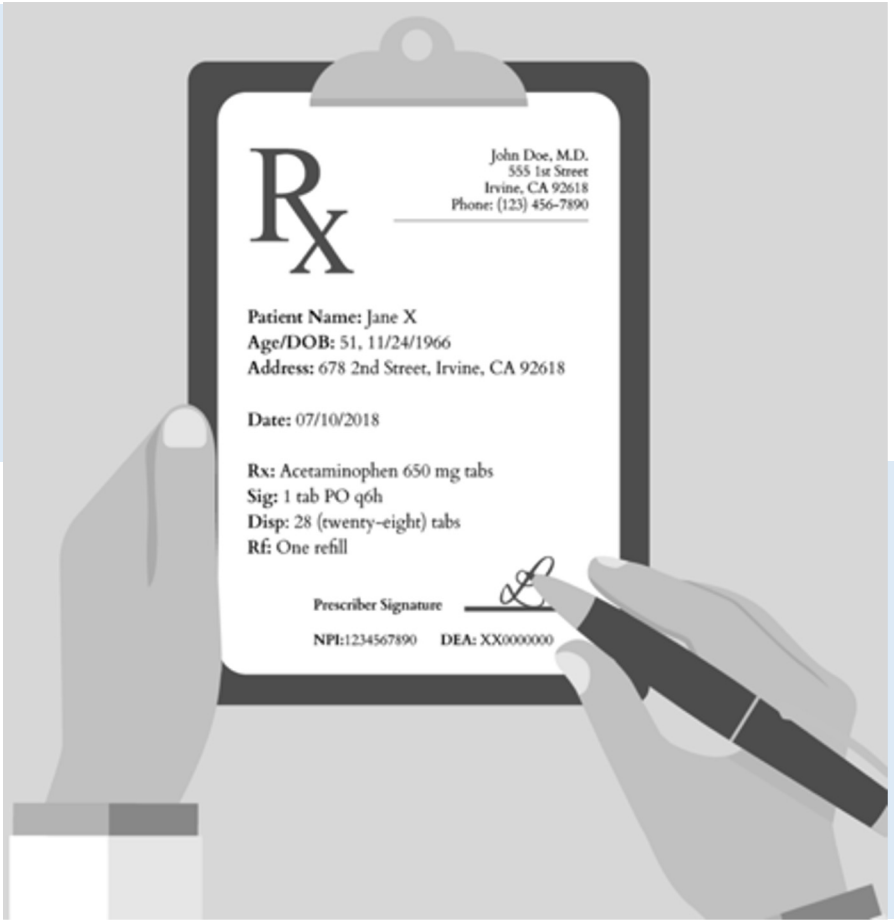
Which one of the statements below is correct?

a. Obese patients with T2DM are best managed with a biguanide.
b. Obese patients with polycystic ovarian disease are best managed with OCP and metformin.
c. Obese patients with sleep initiation insomnia are best managed with Doxepin.
d. Orlistat (Xenical) is given once a day with minimal side effects.

Indications for dual therapy

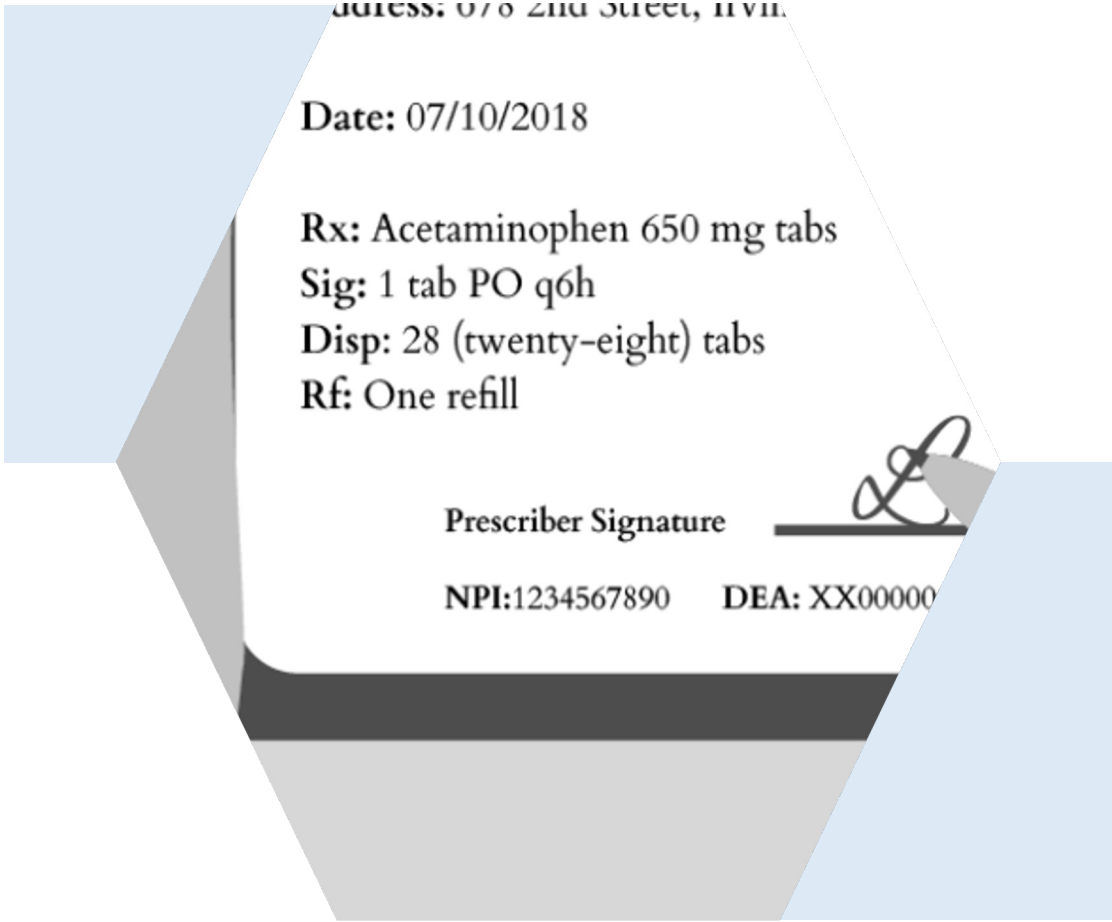
1. With NCDs primarily caused by lifestyle choices,
   - lifestyle modification is mostly the first treatment option.
2. NCD may presents with complications

   or
3. The potential for complications is high
4. Medications may then be prescribed along with targeted lifestyle changes.



Indications for dual therapy

1. Prescription of lifestyle modification has largely been in the mode of general advice - not using a posology.
2. Our practice must have standardised lifestyle modification prescriptions sheets to reduce the barriers to making these prescriptions.
3. Check boxes for types of exercise, number of minutes/day etc will go a long way to implement and standardise.



Indications for dual therapy

1. Standard prescriptions have now been elucidated for diet, exercise, and sleep hygiene among others.
2. Smoking and alcohol cessation also have clear protocols and replacement therapies.
3. The challenge is uptake of these new skills by physicians

   and

4. Personalised care to patients to impact on adherence and persistence with the lifestyle change.

Indications for dual therapy

We have established that lifestyle modification must be prescribed for NCDs.

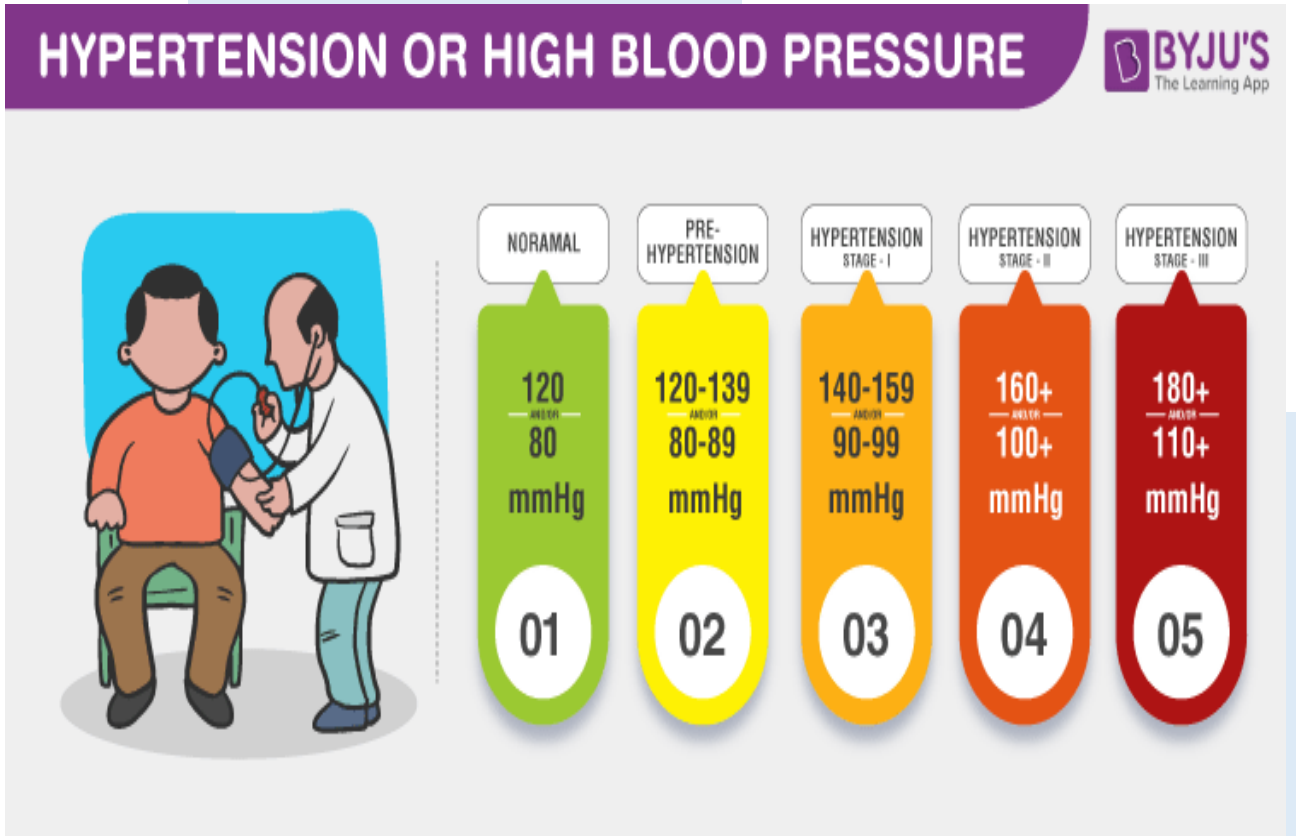
So, the real questions is:

when should we prescribe **medications as well** when we have a patient with an NCD?

Hypertension

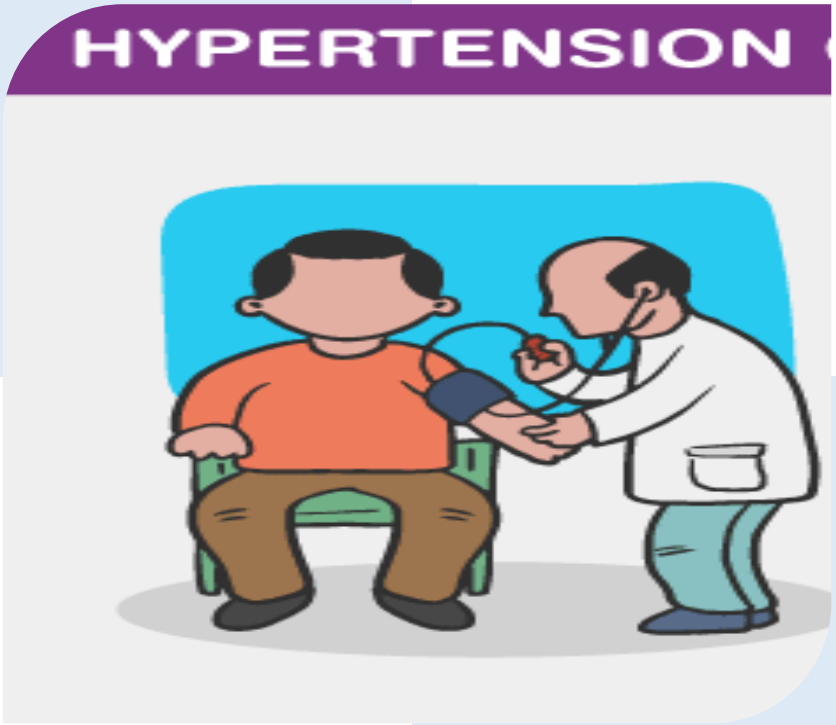
Indications for dual therapy - Hypertension

- Hypertension and elevated blood pressure present to the family physicians in a wide range of stages, from normal to stage III.



Indications for dual therapy - Hypertension

- Lifestyle modification **ONLY** are indicated in 3 of the 5 stages.
- A normal blood pressure must be maintained with right diet (DASH diet & DASH-Sodium) and physical activity.
- Pre-hypertension and Stage 1 hypertension can be normalised by the same means.



Indications for dual therapy - Hypertension

- Stage 1 hypertension would require closer follow up – once a month for example

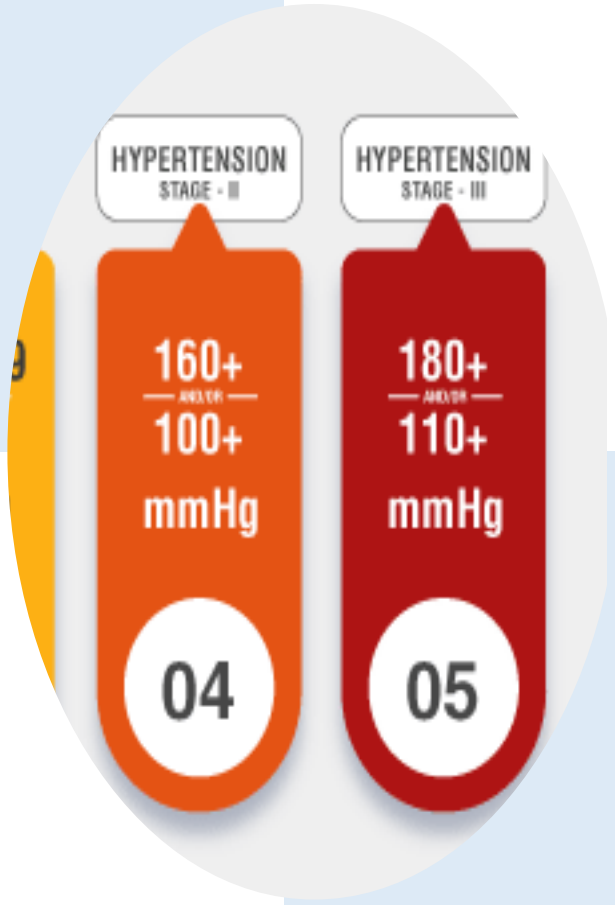
  with

- Home monitoring and self-care that is supported by the health team.

Indications for dual therapy - Hypertension

- Dual therapy is indicated when the diastolic blood pressure is ≥ 100mmHg or the systolic blood is ≥160mmHg.
- Of course, the standard prescription cascade following JNC 8 guidelines would apply:

1. Start with a diuretic only or a combination with a Ca+ channel blocker or a RAB.
2. Add a second or third agent according to response in monthly reviews.



Type 2 DM (T2DM)

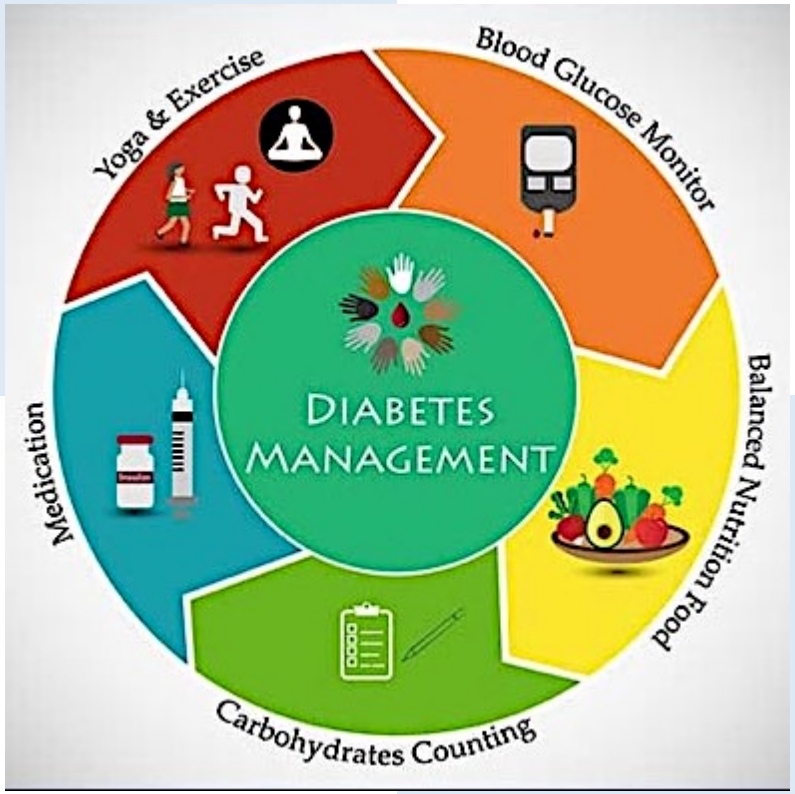
Diabetes Mellitus – Type 2

1. This is one condition is which lifestyle modification plays a vital role in modifying genetic predisposition.
2. Medication alone cannot control this condition in the long term.
3. Evidence abounds that Type 2 DM progresses despite optimal management.

Diabetes Mellitus – Type 2

The goal of T2DM management are:

1. Control glycaemia.
2. Prevent micro and macro vascular damage.
3. Avoid medication that can worsen DM control.[2]
4. To delay progression of disease.



https://www.medindia.net/patients/lifestyleandwellness/self-care-practices-in-diabetes-management.htm#what-is-diabetes-mellitus

Type 2 DM - Initiating therapy

In addition to the following:

1. Education.
2. Evaluation for micro- and macrovascular complications.
3. Attempts to achieve near normoglycemia.
4. Minimization of cardiovascular and other long-term risk factors.
5. Avoidance of drugs that can exacerbate abnormalities of insulin or lipid metabolism.

Tempered based on individual factors such as: age, life expectancy and comorbidities.

Type 2 DM - Initiating therapy

In addition to the following:

1. Education.
2. Evaluation for micro- and macrovascular complications.
3. Attempts to achieve near normoglycemia.
4. Minimization of cardiovascular and other long-term risk factors.
5. Avoidance of drugs that can exacerbate abnormalities of insulin or lipid metabolism.

Tempered based on individual factors such as: age, life expectancy and comorbidities.

Initiating T2DM therapy [3]

The goal of lifestyle modification is to:

- Reduce baseline weight by 5-7%.

1. Through the reduction of daily calorie intake by 500-600 calories,
2. And increase in exercise by 150mins per week.

- The Hb1Ac levels should drop to <7% **in 3-6months** (7.5-8% in patients with multi-medication use/elderly).

If this cannot be achieved or motivation is low, then….

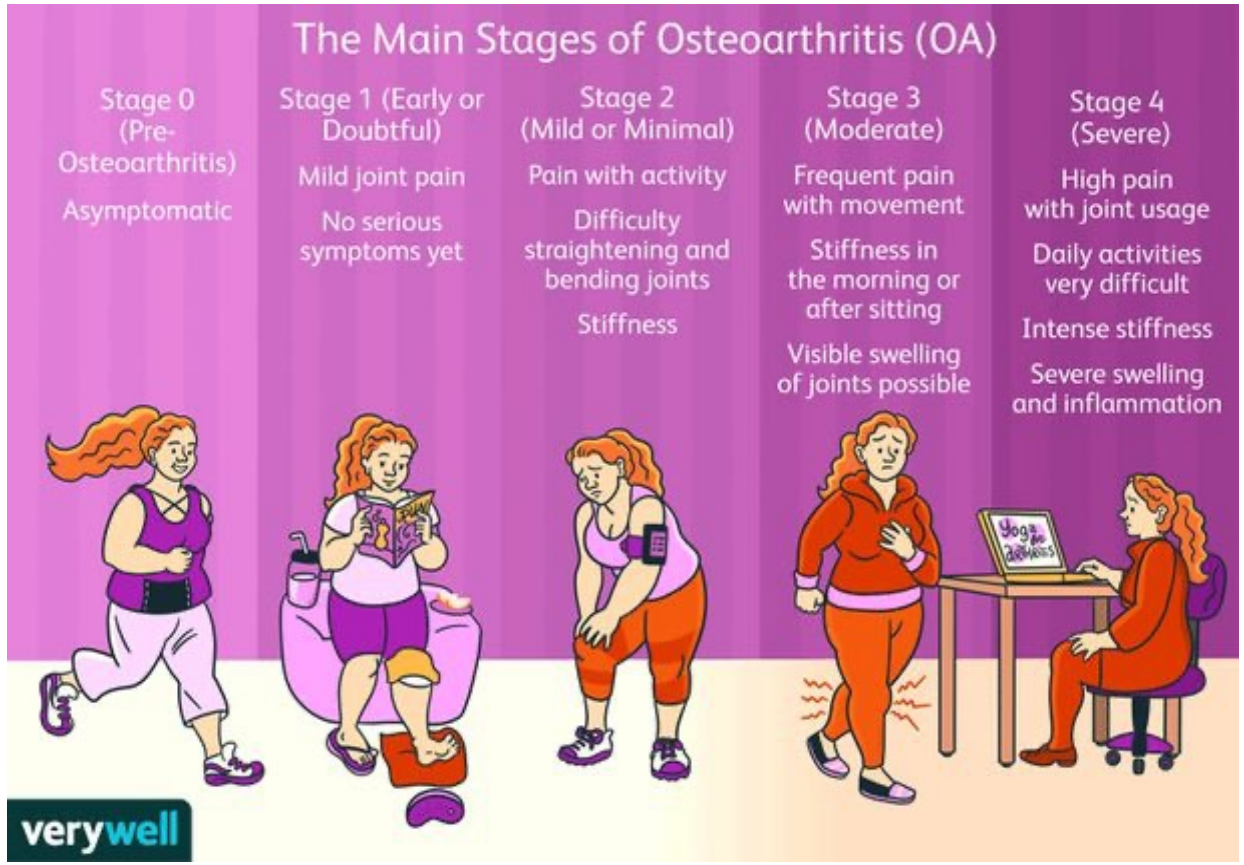
Start Metformin to reduce insulin resistance

or

Initiate Arcabose (alpha glucosidase inhibitors) that blocks the breakdown of starch to form glucose in the GIT.

Osteo-Arthritis (OA)

Initiating Medication for Arthritis

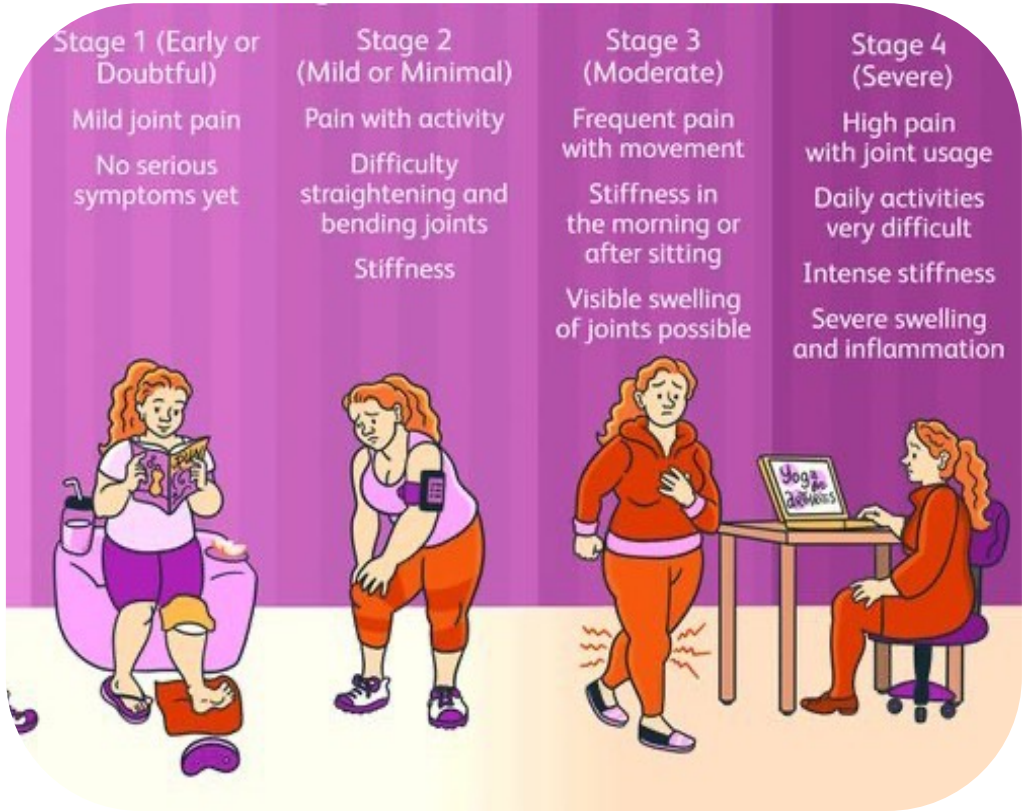


https://www.verywellhealth.com/stages-of-osteoarthritis-5095938

Our practice will give us the opportunity to see patients at different stages of OA

We have the responsibility of preventive/delaying onset of OA in stage 1 patients.

Initiating Medication for Arthritis



https://www.verywellhealth.com/stages-of-osteoarthritis-5095938

In the symptomatic stages of AO, pain reduction is our priority.

Once pain is controlled, then other therapies can commence.

Medication for Stage 1 & 2 OA [4]

https://www.verywellhealth.com/stages-of-osteoarthritis-5095938

38 co-morbidities have been associated with OA before and after onset of pain.

There is no direct cause and effect relationship between OA and these morbidities, but these reasons for encounter provide avenues to enquire about OA and prevent severe disease.

Medication for Stage 1 & 2 OA [5, 6]

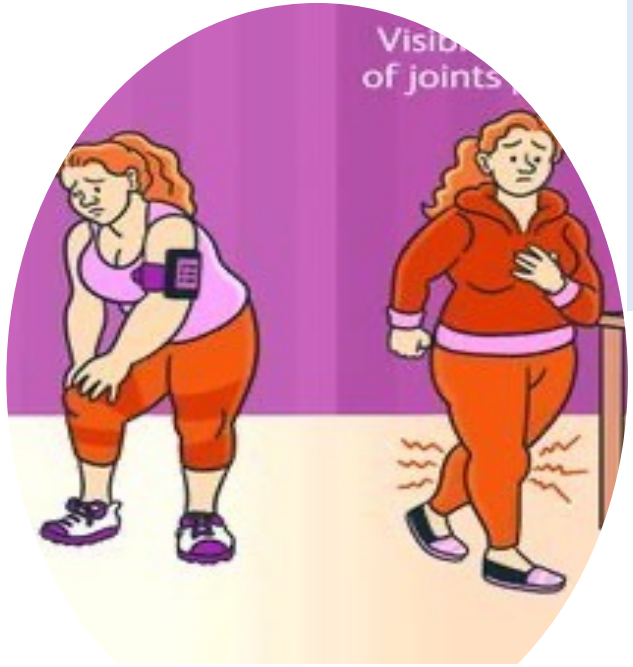
https://www.verywellhealth.com/stages-of-osteoarthritis-5095938

Topical NSAIDs have been found to be superior to oral NSAIDS or Acetaminophen.

Reason:

- The SE profile of oral NSAIDS causes a significant number of complications although pain relief is better with oral NSAIDs.
- Short therapy with oral NSAIDS switched to topical application is best practice.
- Once pain has reduced, lifestyle medicine strategies must be fully operationalised.

Lifestyle modification prescription for OA



Exercise that promote movement of the joints without weight bearing is the way to go ⟶

- Elliptical bikes and exercise bikes are superior to a treadmill.
- Swimming is also great for weight loss especially when some pain persist in the joints.

https://www.verywellhealth.com/stages-of-osteoarthritis-5095938

Overweight & Obesity

Initiating medication for Obesity [7]

1. When it concerns overweight and obesity, the number of patients who solicit for medication to “cure” this illness is huge.
2. Managing overweight and obesity often require extensive lifestyle changes.
3. The good news is that the same lifestyle changes have effect on a considerable number of co-morbidities – meaning the great effort yields a hundred-fold!

https://www.communitypractitioner.co.uk/features/2020/11/obesity-it-everybodys-problem

Initiating medication for Obesity [7]

- So, when does excess weight require medication in addition to the lifestyle change prescription?

1. When the BMI is over 30kg/m^2 even when co-morbidities do not exist.

2. When the BMI is over 27kg/m^2 with co-morbidities.[7]

https://www.communitypractitioner.co.uk/features/2020/11/obesity-it-everybodys-problem

Initiating medication for Obesity [7]

- This is based on NIH guidelines.
- The USA and West African data on obesity and co-morbidities do not appear to be perfectly similar and so application of these guidelines would have to be individualised.

https://www.communitypractitioner.co.uk/features/2020/11/obesity-it-everybodys-problem

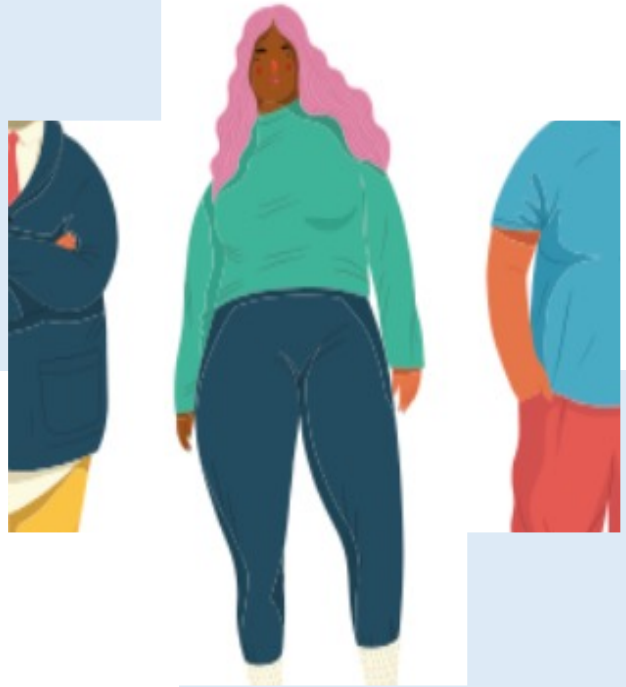
Justification for Obesity medication

- “On average, after 1 year, people who take prescription medications as part of a lifestyle program lose 3% to 12% more of their starting body weight than people in a lifestyle program who do not take medication.
- Research shows that some people taking prescription weight management medications lose 10% or more of their starting weight. Results vary by medication and by person”. [8]

https://www.communitypractitioner.co.uk/features/2020/11/obesity-it-everybodys-problem

Medication for Obesity – Caution! [8]

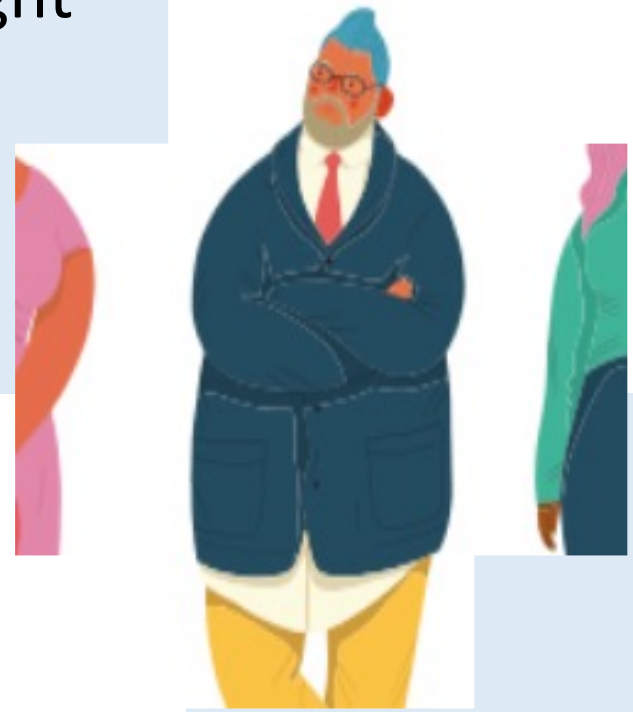
- Few medicines are available for obesity and even fewer in West Africa.
- Their effectiveness is their palliative effect (i.e., production and maintenance of weight loss) rather than cure.
- This may provide the impetus for encouragement that change can occur.
- If prescribed offhand, their effect is short-lived and the patients may start doctor shopping to get a quick fix.
- Pharmacologic therapy should be used only in patients in whom the benefit justifies the risk.



https://www.communitypractitioner.co.uk/features/2020/11/obesity-it-everybodys-problem

Medication for Obesity – with T2DM [8]

- Favour antidiabetic medications that promote weight loss:
  - Glucagonlike peptide-1 [GLP-1] analogs
  - Sodium-glucose-linked transporter-2 [SGLT-2] inhibitors
- In addition to the first-line Metformin.
- Those who require insulin therapy add at least 1 of these:
  - Metformin
  - Pramlintide
  - GLP-1 agonists
- To mitigate associated weight gain due to insulin.

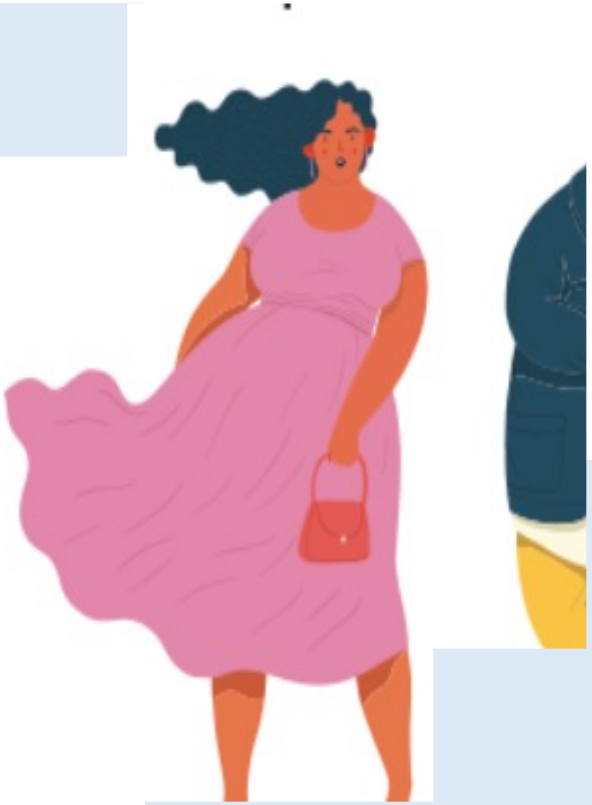


https://www.communitypractitioner.co.uk/features/2020/11/obesity-it-everybodys-problem

Medication for Obesity – with Hypertension [8]

- Beta -blockers should be avoided in Obese T2DM patients with hypertension as it make weight control more problematic.

- Rather favour the following:
  - Angiotensin-converting enzyme (ACE) inhibitors
  - Angiotensin receptor blockers (ARBs)
  - Calcium channel blockers

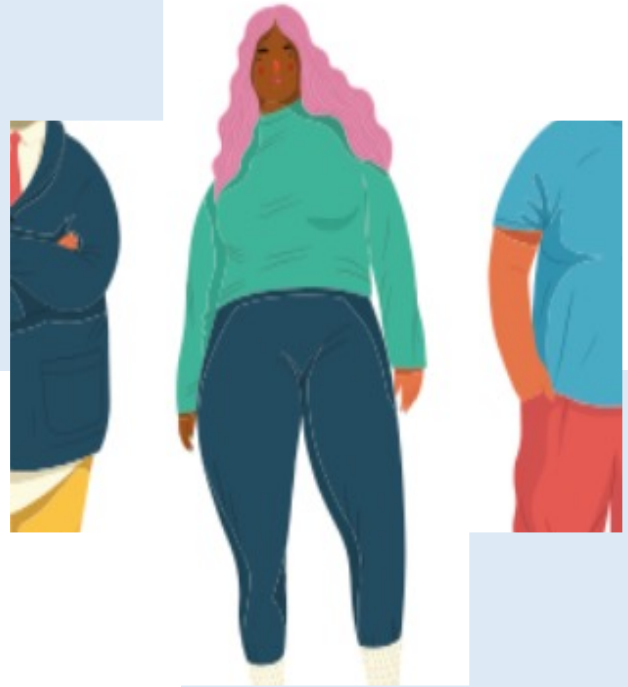


https://www.communitypractitioner.co.uk/features/2020/11/obesity-it-everybodys-problem

Medication for Obesity – with contraception [8]

- If hormonal contraceptives are the best choice for our female overweight symptomatic or obese patient,

- then OCPs are preferred over Hormonal injections as they cause less weight gain.



https://www.communitypractitioner.co.uk/features/2020/11/obesity-it-everybodys-problem

What to prescribe? Medication for Obesity [7]

Weight Management Medication	Approved For	How It Works	Common Side Effects	Precaution
Orlistat (Xenical)	Adults and children >12yrs	Transient inhibition of intestinal lipase	Diarrhoea, leakage of oily stools, stomach pain	Take fat soluble vitamin supplements
Phentermine-topiramate	Adults only	Lessens appetite and causes early satiety	Constipation, dizziness, change in taste (with soda drinks), tingling etc	CI in glaucoma & hyperthyroidism, PREGNANCY, breastfeeding
Naltrexone-bupropion	Adults	Helps with compulsion driven behaviours and improves mood. Lessens appetite and causes early satiety	Constipation, dizziness, dry mouth, headache etc	CI in uncontrolled hypertension, dependence of opioids or alcohol, already of bupropion. May increase suicide thoughts/action.

What to prescribe? Medication for Obesity [7]

Weight Management Medication	Approved For	How It Works	Common Side Effects	Precaution
Liraglutide	Adults and children >12yrs	Mimics glucagon-like peptide to down regulate appetite in CNS	Nausea, diarrhoea, constipation, abdominal pain, headache, tachycardia	Increase change of pancreatitis.
Semaglutide (weekly infections)	Adults			
Medication that curb appetite: phentermine benzphetamine diethylpropion phendimetrazine	Adults	Can only be used for 12weeks or less.	Dry mouth, constipation, difficulty sleeping, dizziness, feeling nervous, restless, headache, raise blood pressure, tachycardia	CI in uncontrolled hypertension, heart failure, hyperthyroidism and glaucoma. RCI anxiety disorders.

Obesity medication monitoring [9]

- If the patient can lose 5% of baseline weight in 3 months of anti-obesity and the SE are manageable, then the medication can be continued under observation.
- Otherwise, it is discontinued as ineffective or having too many SE.
- One may change medication or consider referral for Bariatric intervention.

https://www.communitypractitioner.co.uk/features/2020/11/obesity-it-everybodys-problem

Insomnia

Incidence of Insomnia in 1º Care [10]

1. Approximately 1 in 10 patients will present with insomnia.
2. This could occur in any of the three types of insomnia:
   - Difficulty initiating sleep
   - Difficulty maintaining sleep
   - Early morning wakening.
3. Each type of insomnia has its recommended pharmaco-therapy when the **preferred non-pharmacologic treatment** is not yielding results promptly.

https://www.everydayhealth.com/sleep-pictures/0708/8-cheap-and-natural-insomnia-remedies.aspx

Initiating medication for Insomnia [11]

1. Basic principles requires that a proper diagnosis as to the cause of the insomnia be made.

2. The link below is from the American Academy of Family Physicians (https://www.aafp.org/pubs/afp/issues/2017/0701/p29.html) and is found in the PDF document for this lecture.

https://www.everydayhealth.com/sleep-pictures/0708/8-cheap-and-natural-insomnia-remedies.aspx

Initiating medication for Insomnia [11]

Once a diagnosis has been made:

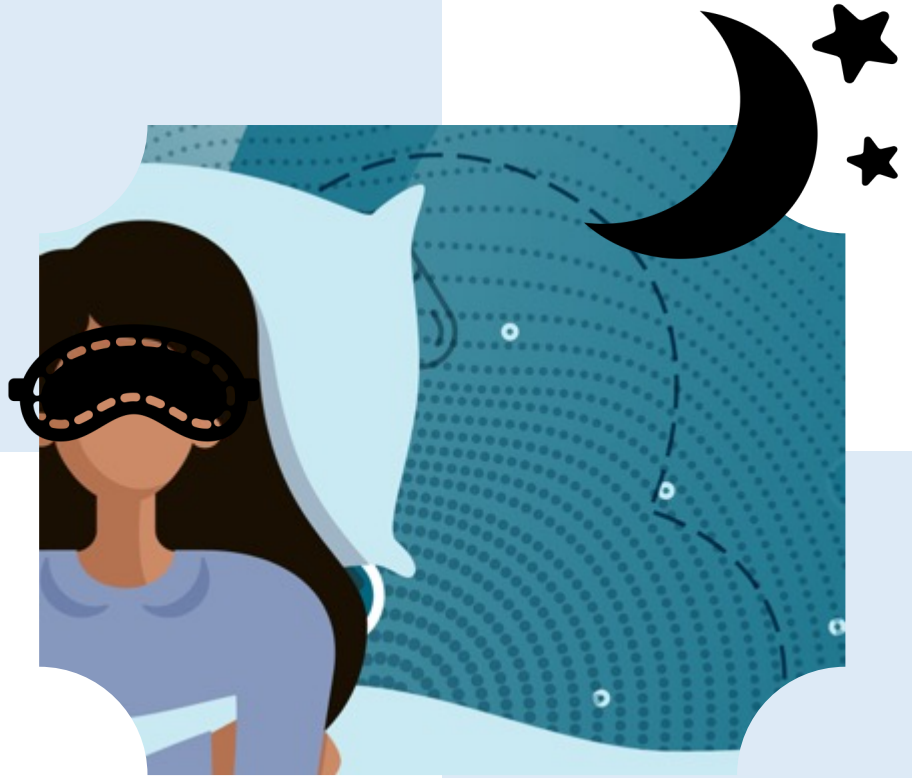
1. Address the underlying medical condition.
2. Add a **Behavioural Intervention** for the insomnia.
3. If symptoms resolve, then reinforce the behavioural intervention
4. If not, determine the type of insomnia at play.

https://www.everydayhealth.com/sleep-pictures/0708/8-cheap-and-natural-insomnia-remedies.aspx

Behavioural Intervention for Insomnia [11]

Sleep hygiene is the 1st step to achieve:

- Having a fixed bed time and waking time (no matter what).
- Create a routine before going to bed which is relaxing – a bath, a drink, a novel etc.
- No white light to the eyes e.g. screens (telephone, TV, computer).
- No catch-up sleep during the day.



https://www.everydayhealth.com/sleep-pictures/0708/8-cheap-and-natural-insomnia-remedies.aspx

Behavioural Intervention for Insomnia [11]

Behavioural Intervention:

- Use of imagery to focus the mind on something calming.
- CBT to deal with stress, anxiety or depression.
- Management of alcohol or stimulant dependence.
- Control disruptive environment as much as plausible.

https://www.everydayhealth.com/sleep-pictures/0708/8-cheap-and-natural-insomnia-remedies.aspx

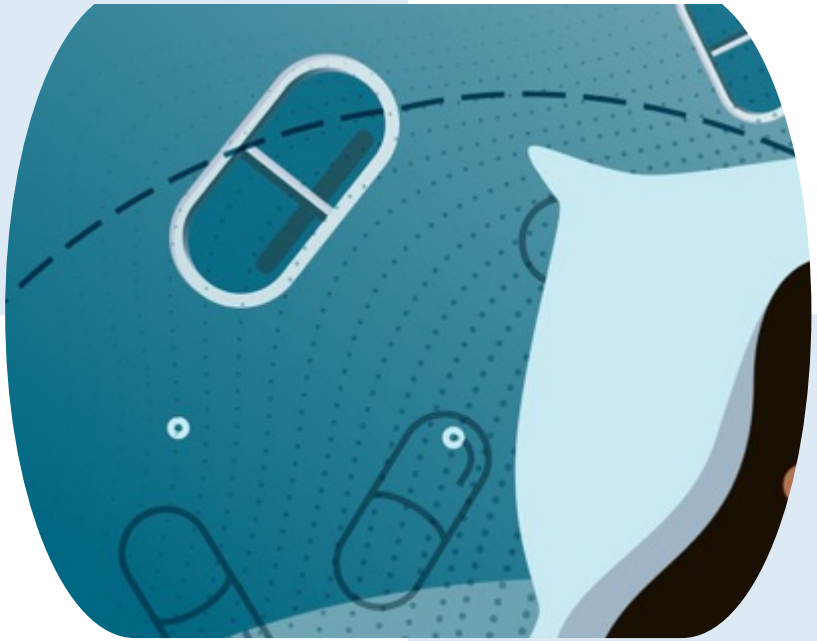
Pharmacological Intervention for Sleep onset insomnia [11]

1. Controlled release Melatonin - best
2. Eszopiclone

   (Z-drug with both sleep onset and maintenance effect).
3. Zaleplon

   (Z-drug -cheaper but sleep onset effect only).
4. Zolpidem – least preferred

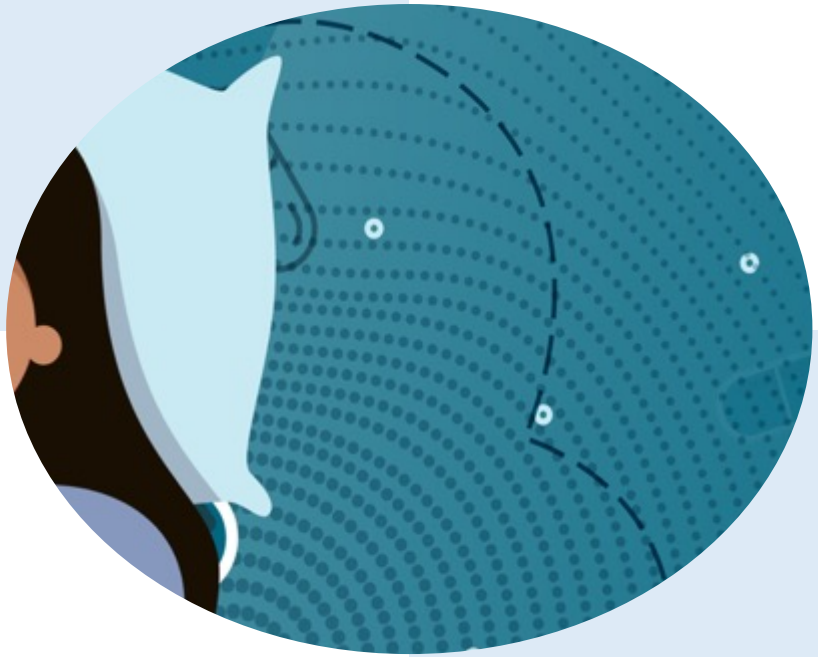
   (Z-drug but very expensive).



https://www.everydayhealth.com/sleep-pictures/0708/8-cheap-and-natural-insomnia-remedies.aspx

Pharmacological Intervention for Sleep maintenance insomnia [11]

1. Eszopiclone- best
   (Z-drug with both sleep onset and maintenance effect)
2. Doxepin
   (Tricyclic antidepressant –sleep maintenance).
3. Zolpidem – least preferred
   (Z-drug but very expensive).



https://www.everydayhealth.com/sleep-pictures/0708/8-cheap-and-natural-insomnia-remedies.aspx

Pharmacological Intervention for insomnia in older adults [11]

1. Doxepin – best
   (Tricyclic antidepressant –sleep maintenance).
2. Controlled release Melatonin
3. Ramelteon
   (Melatonin agonist) – least preferred

https://www.everydayhealth.com/sleep-pictures/0708/8-cheap-and-natural-insomnia-remedies.aspx

Pharmacological Intervention for insomnia in patients with depression [11]

1. Doxepin – best
   (Tricyclic antidepressant –sleep maintenance).

https://www.everydayhealth.com/sleep-pictures/0708/8-cheap-and-natural-insomnia-remedies.aspx

Post - test!

Post-test

1. Patients often require some lifestyle modification recommendations to manage their presenting complaint.

Which one of the options below is correct?

a. Addictions to cigarettes are not amenable to lifestyle modification prescription.
b. Lifestyle modification prescriptions needs to be written like a medication prescription.
c. Prescribing both medication and lifestyle changes in the same consultation hampers adherence.
d. The prescription of lifestyle modification is best given by counselling during the consultation.

Post-test

2. Hypertension management is influenced by the stage of hypertension the patient presents with.

Which one of the statements below is correct?

a. Lifestyle modification alone is the mainstay of hypertension in stage 1 disease.
b. Lifestyle modification for hypertension is straight forward and most often implemented by patients.
c. Lifestyle modification is all well and good, but antihypertensives are best prescribed once diagnosis is made.
d. Patients with diastolic blood pressure above 90mmHg are best started on medication management.

Post-test

3. Type 2 DM requires a lot of lifestyle modifications as many patients with this diagnosis are overweight/obese and have other co-morbidities.

Which one of the statements below is correct?

a. A patient with T2DM and obesity require intense exercise prescription **only** if the Hb1Ac is less than 8%.
b. Glucagon like peptide-1 [GLP-1] analogs are indicated to help with weight loss.
c. Lifestyle modification needs to yield 2% weight loss before anti-diabetic medication can be commenced.
d. Medication side effects can be managed by balancing one medication against another.

Post-test

4. Osteo-arthritis of the knee is associated with overweight and obesity hence the need for weight loss.

Which one of the statements below is correct?

a. Best practice recommends topical NSAIDs over oral NSAIDS for long term management of osteo-arthritis.
b. Most exercise is effective for weight loss and hence applicable to patients with osteo-arthritis.
c. The most effective pain control medication for osteo-arthritis is topical NSAIDs.
d. The patient should be initiated on an exercise programme even when pain exist by controlling the pain with NSAIDS

Post-test

5. Obesity and overweight can be managed with medication as well.

Which one of the statements below is correct?

a. Obese patients with T2DM are best managed with a biguanide.
b. Obese patients with polycystic ovarian disease are best managed with OCP and metformin.
c. Obese patients with sleep initiation insomnia are best managed with Doxepin.
d. Orlistat (Xenical) is given once a day with minimal side effects.

Summary:

- We have seen how NCDs which are often based on behavioural choices, require a standardized LM prescription, follow-up plan for adherence and persistence with the needed treatment.
- NCDs require LM first before prescription of medication, if no complications exist at presentation for Hypertension, Insomnia, Overweight/Obesity and OA.
- T2DM is one NCD in which medication is required very soon after 1st consultation. This is to slow down insulin resistance and progression of the disease.
  - LM is 1st used to establish the pivotal importance of this treatment over medication.
- Specific indications for starting dual therapy were highlighted and the best medication for specific patient profiles was also shared.

References

1. Ganju A, Goulart AC, Ray A, et al. Systemic Solutions for Addressing Non-Communicable Diseases in Low- and Middle-Income Countries. *J Multidiscip Healthc*. 2020;13:693-707. Published 2020 Jul 27. doi:10.2147/JMDH.S252300.
2. https://www.uptodate.com/contents/initial-management-of-hyperglycemia-in-adults-with-type-2-diabetes-mellitus?topicRef=1790&source=see_link.
3. (IDF) International Diabetes Federation course for PCP (Primary Care Physicians) https://www.idfdiabeteschool.org/.
4. https://academic.oup.com/rheumatology/article/60/9/4327/6121906?login=true
5. https://www.jmcp.org/doi/full/10.18553/jmcp.2021.27.12.1652
6. https://www.sciencedirect.com/science/article/abs/pii/S1063458421008104
7. https://www.niddk.nih.gov/health-information/weight-management/prescription-medications-treat-overweight-obesity.
8. https://emedicine.medscape.com/article/123702-treatment
9. Yanovski SZ, Yanovski JA. Progress in pharmacotherapy for obesity. JAMA. Published online June 23, 2021. doi:10.1001/jama.2021.9486.
10. Gureje, O., Makanjuola, V.A. & Kola, L. Insomnia and role impairment in the community. *Soc Psychiat Epidemiol* **42**, 495–501 (2007). https://doi.org/10.1007/s00127-007-0183-2
11. https://www.aafp.org/pubs/afp/issues/2017/0701/p29.html

THANK YOU

FOR LISTENING