



Multimorbidity

An IPCRG initiative
Multimorbidity management in COPD

Boehringer Ingelheim provided an unrestricted educational grant to support the development, typesetting, printing and associated costs but did not contribute to the content of this document.

Breathing and feeling well through universal access to right care



Multimorbidity Case Studies

COPD and differential diagnosis

Authors: Björn Ställberg, Christian Jensen

Breathing and feeling well through universal access to right care

About these slides



- Please feel free to use, update and share some or all of these slides in your non-commercial presentations to colleagues or patients
- There is a general introduction to multimorbidity management in COPD, followed by a case study
- The slides are provided under creative commons licence CC BY-NC-ND
 - o BY stands for attribution (the obligation to credit the author and other parties designated for attribution);
 - o NC stands for NonCommercial (commercial use is excluded from the license grant);
 - o ND means NoDerivatives (only verbatim copies of the work can be shared)
- When using our slides, please retain the source attribution: IPCRG 2020 Multimorbidity

What you will learn



- Why we are focused on multimorbidity
- What multimorbidity means in people with chronic respiratory disease
- How we can improve the management of the patient with chronic respiratory disease and multiple comorbid conditions
- How you can be part of that change



Multimorbidity in COPD (I)

- Patients with COPD typically also present with multiple comorbid conditions which may require long-term management alongside their COPD
- An additional challenge is that concomitant conditions can be overlooked because signs and symptoms overlap with those associated with COPD
- Up to 80% of patients with COPD will have at least one comorbid condition of clinical relevance, half of them will have three or more
- Comorbid conditions are more frequent in women than men and increase in prevalence with worsening COPD severity

Multimorbidity in COPD (II)



- Comorbidities often appear in clusters, which suggests common risk factors (e.g. smoking, inactivity), shared underlying pathobiological mechanisms (e.g. accelerated ageing), and side effects of COPD treatment
- Common comorbidities in patients with COPD include:

Cardiovascular diseases

Metabolic syndrome

Muscle weakness

Diabetes

Osteoporosis

Gastroesophageal reflux

Anxiety and depression

Bronchiectasis

Lung cancer

Obstructive sleep apnoea



Managing the multimorbid patient with COPD (I)

- The management of individual patients with COPD and multimorbidities is often complex requiring the simultaneous application of several disease-specific treatment guidelines
- These guidelines are not always well aligned with regard to treatment recommendations in the face of multimorbidity therefore a holistic approach is of particular importance for patients with COPD
 - Primary care physicians should seek to undertake at least annual (re)assessment and treatment adjustment for patients with COPD
- Emergence of multimorbidity should be regarded as a signal and call to action to undertake a review of COPD treatment with a focus on the interface between symptoms of comorbid disease and side effects of medication
- In this set of slides we focus on COPD and the whole patient context. It is important to engage with the patient about what problem (symptoms/disease) concerns them most – both worries them and causes most daily limitations, what is their perception of their problems and what is most important to them. As GPs, we deal with them all, and do need to prioritise in line with the patient. Having said that, and reiterating as a general principle, this set is about COPD, but it's important not to lose sight of the whole patient context.



Managing the multimorbid patient with COPD (II)

- For patients with COPD, multimorbidity is associated with:
 - o A high level of polypharmacy and an increased risk for adverse drug reactions and interactions
 - o An increased risk of hospitalisation
 - o An increased risk of premature death
- Polypharmacy is of particular concern when drugs with potential for similar adverse reactions are combined and when comorbid conditions and adverse reactions to treatment look alike



Managing the multimorbid patient with COPD (III)

- According to GOLD 2020, in general, multimorbidity should not delay the treatment of COPD and comorbidities should be managed according to usual standards
- Attention should be directed to ensure treatment simplicity and to minimise polypharmacy



Improving the management of multimorbid COPD patients in primary care

- Optimise the treatment regimen according to GOLD classification (GOLD 2020) and assess and treat comorbidities^{1,2}
- For patients with multimorbidities undertake a review of COPD treatment with a focus on the interface between symptoms of comorbid disease and side effects of medication¹
- In addition, think carefully about the indications for ICS use before prescribing. Use in line with guideline recommendations and note the latest IPCRG advice on appropriate use of ICS and guidance on ICS withdrawal¹

ICS, inhaled corticosteroid

1. IPCRG. Desktop Helper No. 10. Rational use of inhaled medications for the patient with COPD and multiple comorbid conditions: Guidance for primary care. Available at: <https://www.ipcr.org/dth10>; 2. The Global Initiative for Chronic Obstructive Lung Disease (GOLD) 2020. Available at: <https://goldcopd.org/>.



Additional essential action points

1. Increase awareness of COPD multimorbidity and screen and monitor patients for the most common comorbidities
2. Ensure at least yearly patient (re)assessment and treatment adjustment in the primary care setting, including stopping of inappropriate medication. Don't forget lung cancer
3. Review inhalation technique and adherence to medication
4. Empower multimorbid patients with COPD and caregivers to help them cope with potentially overwhelming amounts of information and associated depression and anxiety
5. Carefully evaluate the indication before initiating ICS treatment
6. Closely monitor for cardiac rhythm disorders, including atrial fibrillation, when initiating patients on a LABA
7. Monitor for emergent urinary symptoms when initiating patients with chronic kidney or prostate disease on LAMA

With regard to ongoing ICS treatment, consider

- **Asthma:** ICS treatment must be continued
- **Diabetes:** reconsider if ICS treatment is needed; if ICS is continued, close follow up, glucose monitoring and titration of antidiabetic treatment are required
- **Osteoporosis:** reconsider if ICS treatment is needed; if ICS is continued, close follow up for loss of bone mineral density and risk of fractures is required. Screening for osteopenia or osteoporosis is recommended in patients receiving high dose of ICS or low to medium dose ICS with frequent use of oral corticosteroids
- **Infections (pneumonia or tuberculosis):** consider withdrawal of ICS and maximize bronchodilation

Our aim



- To use a case study to teach how to identify and manage the multimorbidity of people with COPD

The patient



- 65 years old, male
- Allergic rhinitis up to the age of 35 years
- Retired 2 years ago
- Has worked as paramedic for 30 years
- Runs a mechanics shop for garden machines in his spare time
- Likes travelling with his wife on vacations with their caravan
- No sport or exercise in his free time

General medical history



- Hypertension for many years
- Myocardial infarction 10 years ago
- Osteoarthrosis leading to a knee prosthesis 5 years ago
- Current medications: amlodipine, acetylsalicylic acid and atorvastatin
- Obese since his thirties, weight 108 kg, height 168 cm and BMI 38
- Despite his medical history very limited contacts with primary care over the years



Respiratory history I

- He has been smoking for 40 years (40 pack years) but quit one year ago
- The patient believes he's suffering from asthma though the diagnosis has not been verified with spirometry
- 10 years ago he was prescribed a fixed combination of ICS (budesonide) 200 mcg/LABA (formoterol) 4.5 mcg twice daily and SABA (terbutalin) as needed
- He has never been prescribed oral steroids

Respiratory history II



- He hasn't been to any asthma checkup for the last five years
- He usually renews his asthma prescriptions when he has been to the clinic for reasons other than asthma and sometimes by telephone contact
- Over the last 10 years he has had at least six episodes with a diagnosis of pneumonia treated with antibiotics

At the visit to the health care centre



- Now he has a scheduled visit for a general medical examination and blood pressure control

At the visit...



- When asked he admits symptoms with dyspnoea/shortness of breath when walking fast or uphill
- No calf pain when walking
- He also has morning cough and cough when exercising or laughing
- No exacerbations in the previous year
- Heart and pulmonary auscultation without remark.
- Blood pressure: 145/85 mmHg



At the visit continued...

- This time he also agrees to perform a spirometry, his first ever

The results

Parameter	Enhet	Pre-test		Post-test				Pred
		1/3 09:51	% Pred	2/3 +25 min.	% Pred	% Endr Pre-test	Ändr Abs	
FVC	L	2,99*	72	3,12*	75	4	0,13	4,18
FEV1	L	1,65*	51	1,74*	54	5	0,09	3,21
FEV1/FVC	%	55,2*	72	55,8*	73	1	0,6	76,8

FEV₁, forced expiratory volume in 1 second; FVC, forced vital capacity



At the visit continued

Parameter	Enhet	Pre-test		Post-test				Pred
		1/3 09:51	% Pred	2/3 +25 min.	% Pred	% Endr Pre-test	Ändr Abs	
FVC	L	2,99*	72	3,12*	75	4	0,13	4,18
FEV1	L	1,65*	51	1,74*	54	5	0,09	3,21
FEV1/FVC	%	55,2*	72	55,8*	73	1	0,6	76,8

- Spirometry results after bronchodilation:
 - o FVC: 3.12 (75% of predicted)
 - o FEV₁: 1.74 (54% of predicted)
 - o FEV₁/FVC: 0.56
 - o Reversibility: 5% (90 mL)

What is the most likely diagnosis?



- Asthma?
- COPD?
- Both asthma and COPD?
- Heart failure?

Do we need more information or investigations? What would you suggest?



- Results from questionnaires (CAT or CCQ)?
- Chest X-ray?
- CT scan?
- Allergy testing?
- Blood eosinophils?
- proBNP measurement?
- ECG?

Some results

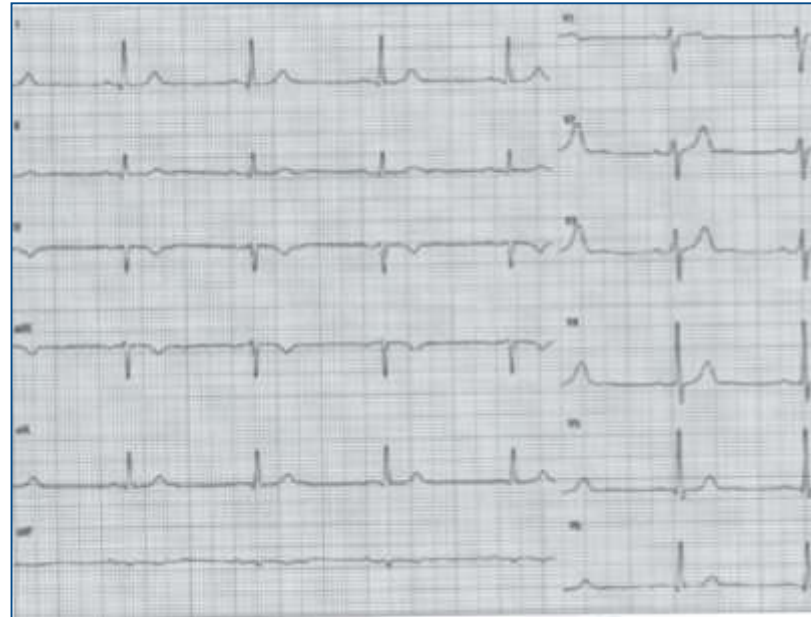


- CAT: 15
- Chest X-ray: Nothing remarkable
- CT scan: Not done
- Allergy testing: Not done
- Blood eosinophils: 200 cells/ μL ($0.2 \times 10^9/\text{l}$)
- proBNP: Normal value (no suspicion of heart failure)



ECG

- ECG:
 - Regular sinus rhythm
 - ECG normal



What is your assessment now?





The diagnosis was changed from asthma to COPD

Parameter	Enhet	Pre-test		Post-test			Pred	
		1/3 09:51	% Pred	2/3 +25 min.	% Pred	% Endr Pre-test		Ändr Abs
FVC	L	2,99*	72	3,12*	75	4	0,13	4,18
FEV1	L	1,65*	51	1,74*	54	5	0,09	3,21
FEV1/FVC	%	55,2*	72	55,8*	73	1	0,6	76,8

Abbreviations: Enhet=Unit, Pre-test= before bronchodilatation, Post test=after bronchodilatation, % Pred=% of predicted, % Endr=percentage change from Pre-test, Ändr abs=change in absolute value)

- Spirometry results after bronchodilatation:

FVC: 3.12 (75% of predicted)

FEV₁: 1.74 (54% of predicted)

FEV1/FVC: 0.56

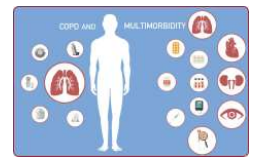
The reversibility was 5% (90 ml)

Important clinical considerations



1. Should the medical treatment be changed after the revision of the diagnosis?
2. If changing therapy – what are the reasons to change?
3. Which treatment should be recommended in the future?
4. How and when should the patient be followed up in the future?

Should the medical treatment be changed after revision of the diagnosis?



- Until the change of diagnosis from asthma to COPD his medications was:
 - o ICS (budesonide) 200 mcg in combination with LABA (formeterol) 4.5 mcg twice daily

Reasons to change therapy



- No signs of asthma
- ICS increases the risk of pneumonia¹
- Low Blood eosinophils²

Which treatment should be recommended?



- The patient is classified as GOLD B
- In current guidelines the preferred treatment is LAMA, LABA or LAMA+LABA

How and when should the patient be followed up in the future?



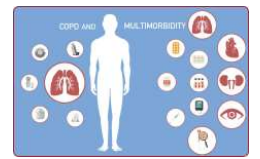
- Referral to a physiotherapist
- Check the inhalation technique
- A follow up with a new CAT at the primary health care centre after 2–3 months

What follow-up opportunities do you have in your practice?

A summary from this case



- A correct diagnosis needs a spirometry test with reversibility test
- Evaluate comorbidities
- Consider risks and benefits with pharmacological treatment
- Do not forget the follow up



What is your conclusion from this case?



Thank you!