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Bempedoic acid

Day 1:A non-statin LDL-lowering agent, #bempedoic acid is a 1st in class drug, approved in 2020 & now UK recommended as a statin alternative (combined with ezetimibe). Ezetimibe is tried added to statin, or used alone 1st, before introducing #bempedoic acid. [#bempedoic](https://twitter.com/hashtag/bempedoic?src=hashtag_click) acid is estimated to deliver LDL-C reduction of ~ 30% alone & the statin equivalent average reduction of ~45% when combined with ezetimibe

Day 2: Adult oral dose 180mg od, [#bempedoic](https://twitter.com/hashtag/bempedoic?src=hashtag_click) acid is used for primary hypercholesterolaemia (not 1st line), as added to other agents, OR as monotherapy combined with ezetimibe. No dose adjustment is needed for the elderly

Day 3: [#bempedoic](https://twitter.com/hashtag/bempedoic?src=hashtag_click) acid is a prodrug which is activated in the liver. There is high protein binding for the parent drug & metabolites. Main breakdown is conversion via UGT2B7 into inactive glucuronide (no known phase 1 activity). Mainly renal excretion, t½ 15-24hrs

Day 4: The active metabolite opposes action ATP citrate lyase to reduce cholesterol biosynthesis. Low cholesterol levels up-regulate the hepatic LDL receptors, extracting more LDL-C from blood & slowing atherosclerotic changes. Thought to lower CRP (via AMPK pathway) & so also reduce CVD risk

Day 4 (cont) This mechanism of action is mooted to avoid myalgias, as prodrug activation is upstream from HMG-CoA. [#bempedoic](https://twitter.com/hashtag/bempedoic?src=hashtag_click) acid activation is via a hepatic enzyme (ACSVL1), which is not expressed in skeletal muscle; there is also no known effect on mevalonate levels, both aspects in contrast to statins

Day 5: [#bempedoic](https://twitter.com/hashtag/bempedoic?src=hashtag_click) acid is designed to avoid myalgias, but can lead to gout & extremity pain (common). Uncommon ADEs include abnormal renal & LFTs & a decreased eGFR. Avoid in pregnancy. If added to a statin, [#bempedoic](https://twitter.com/hashtag/bempedoic?src=hashtag_click) acid can increase statin bioavailability & increase the risk of myopathies.

Day 6: Drug-drug interactions: [#bempedoic](https://twitter.com/hashtag/bempedoic?src=hashtag_click) acid is a weak inhibitor of some OAT transporters, so can increase concentrations of some anti-virals e.g glecaprevir, as well as increasing exposure to all statins. BNF shows just 2 DDIs (both statins), neither classed as 'severe'

Day 7: Unlike statins, [#bempedoic](https://twitter.com/hashtag/bempedoic?src=hashtag_click) acid has no known effect on diabetes risk in the short-term (~ 1 year); Noted that statin risk increases with duration of use, but long-term info for [#bempedoic](https://twitter.com/hashtag/bempedoic?src=hashtag_click) acid is lacking. Some studies moot beneficial effects in diabetes, i.e gluconeogenesis inhibition via AMPK activation

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In addition to the tweets, read the BNF treatment summary on Dyslipidaemias, as well as the monographs on bempedoic acid alone and in combination with ezetimibe. Also use the Bempedoic acid (Nilemdo alone and Nustendi in combination) SPCs as resources.

https://bnf.nice.org.uk/treatment-summaries/dyslipidaemias/

<https://bnf.nice.org.uk/drugs/bempedoic-acid/>

<https://bnf.nice.org.uk/drugs/bempedoic-acid-with-ezetimibe/>

<https://www.medicines.org.uk/emc/product/11743/smpc#gref>

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1. Bempedoic acid will help weight loss

TRUE or FALSE

1. Bempedoic acid acts in the liver, the same as statins

TRUE or FALSE

1. Which of the following is TRUE?
2. No dose adjustment is needed for the elderly
3. Bempedoic acid has multiple drug-drug interactions
4. Bempedoic acid has multiple rare adverse drug effects
5. Bempedoic acid cannot be added in as combined with statins
6. Bempedoic acid is a prodrug

 TRUE or FALSE

1. Which is a common adverse drug effect?
2. Deranged liver function tests
3. Increased serum creatinine
4. Increased uric acid levels
5. Increased eGRF
6. Bempedoic acid should not be used in pregnancy & lactation

TRUE or FALSE

1. Bempedoic acid has the same risk of myopathies compared to statins

TRUE or FALSE

1. Bempedoic acid alone reduces LDL-C by more than statins

TRUE or FALSE

1. Bempedoic acid can increase exposure to statins if used together, which can increase risk of myopathies

TRUE or FALSE

1. The risk of new onset type 2 diabetes in the short-term is less for bempedoic acid compared to statins

TRUE or FALSE