correlated with TTS ($p=0.91$, $p=0.82$, $p=0.22$, respectively). TTS demonstrated high levels internal consistency (alpha) of 0.94 and test re-test reliability of 0.94 ($p<0.001$); suggesting that some items could be removed in subsequent stages. TTS correlated with total SGRQ score ($r=0.32$, $p=0.02$), in particular with SGRQ's symptoms score ($r=0.44$, $p=0.001$) and impacts score ($r=0.61$, $p<0.001$), but not with SGRQ's activity score ($r=0.19$, $p=0.17$). A significant relationship was found between TTS and total CSD score ($r=0.56$, $p<0.001$).

Conclusion Our preliminary data suggests that current TOPIC questionnaire items have value in discriminating idiopathic chronic cough from cough associated with chronic lung disease. Further data will be collected across different patient groups to identify the best items to retain in the final questionnaire. The TOPIC questionnaire may be a useful tool to quantify sensations or triggers of cough and may help us to better understand cough mechanism.

P103 THE URGE TO COUGH IN COPD

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Introduction Urge to cough is a conscious perception of the need to cough. We investigated urge-to-cough, triggers and somatic sensations associated with cough in patients with COPD and compared it to patients with chronic refractory cough (CRC).

Methods We undertook a prospective case-control study of COPD patients with chronic cough (≥ 8 weeks) and patients with CRC. All patients completed a 27-item structured questionnaire (Cough Hypersensitivity Questionnaire; CHQ), that has a 5-point Likert response scale to assess urge-to-cough, aggravating factors/triggers and somatic sensations (0–4; 0=never and 4=occurs all the time in relation to cough). 10 COPD patients underwent a capsaicin challenge test to provoke an urge-to-cough sensation and to assess cough reflex sensitivity. The concentration of capsaicin that elicited 2 or more coughs (C2) and 5 or more coughs (C5) was recorded.

Results 62 COPD and 40 CRC patients were recruited (mean (SD) age 64(11) vs 54(14) years, 48% vs 70% females, FEV₁% predicted 48.2% (19.0) vs 94.1% (16.6) respectively). The top 5 cough triggers and somatic sensations in patients with COPD and CRC are summarised in Table 1. The severity of sputum trigger of cough and chest sensation associated with cough were significantly greater in COPD compared to CRC; median(IQR) sputum scores: 3 (2–4) vs 2 (1–2) and chest sensation scores: 2 (2–4) vs 1 (0–2) respectively, both $p<0.01$. The prevalence of urge-to-cough was higher in CRC vs COPD: 97.5% vs 75.8% respectively. The severity of urge to cough and eating/drinking trigger of cough were significantly greater in CRC compared to COPD; median(IQR) urge to cough scores: 3 (2–3) vs 2 (1–3) and eating and drinking scores: 2 (0–3) vs 1 (0–2) respectively, both $p=0.02$. Geometric mean(SD) C2 and C5 in COPD were 9.5 (18.2) and 10.9 (18.0) micromol.L⁻¹. There was a significant correlation between C5 and urge to cough in COPD ($r_s=-0.74$, $p=0.02$) but not with sputum trigger score ($r_s=-0.10$, $p=0.80$).

Conclusion Sputum is a significant self-reported trigger of cough in COPD. In contrast, urge to cough occurs more

frequently in CRC. There are likely to be multiple mechanisms of cough in COPD and further studies should investigate whether phenotyping cough on the basis of self-reported triggers and somatic sensations can guide therapy.

Abstract P103 Table 1 Prevalence of triggers and somatic sensations associated with cough in COPD and chronic refractory cough. Data presented as percentage of all patients

Top 5 triggers and somatic sensations associated with cough	Prevalence (%) patients)
COPD	
Sputum	87
Chest sensation	86
Smoke or smoky atmosphere	81
Dry throat	77
Exercise	77
Chronic refractory cough	
Urge to cough	98
Tickle in throat	93
Cold air	90
Irritation in throat	88
Postural change	88

P104 SENSATIONS ASSOCIATED WITH EXPERIMENTALLY EVOKED COUGH: INFLUENCE OF LOW DOSE MORPHINE SULPHATE IN OPIOID RESPONDERS

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Introduction and Objectives Patients with chronic cough complain of a variety of sensations that they perceive as provoking coughing, identifying irritation, tickle and the urge to cough (UTC) as important. Effective therapies for chronic cough such as low dose morphine have failed to reduce experimentally evoked cough responses, but their effect on the sensations driving cough is unknown. We hypothesised that low dose morphine therapy reduces the sensations driving cough and predicted that the sensations experienced during inhalational cough challenge may demonstrate this mechanism.

Methods Twenty-two refractory chronic cough patients (mean age 61.7 years, 18 female, mean cough duration 14 years) taking low dose morphine sulphate treatment enrolled into a double-blind randomised controlled crossover trial comparing the effects of low dose morphine sulphate with matched placebo. Following withdrawal of their morphine therapy, participants were randomised to receive morphine (5–10 mg BD slow release) or matched placebo during two treatment period (5–7 days duration) separated by a 5–7 day washout. On the final day of each treatment period subjects inhaled increasing concentrations of citric acid (0.01–4 M, 18 ascending concentrations), rating irritation, tickle, UTC and taste on 100 mm visual analogue scales (VAS; 0 mm=none and 100 mm=worst) after each inhalation. The challenge continued until subjects coughed at least twice on any concentration of citric acid (C2). For the analysis, general estimating equation (GEE) models evaluated the effect of treatment on reported sensations, with increasing per citric acid dose.