

# Letter: online search trends suggest patient concerns around immunosuppression use in inflammatory bowel disease during COVID-19 in the United Kingdom

We read with interest the paper by Taxonera *et al* reporting on clinical characteristics of COVID-19 in patients with inflammatory bowel disease (IBD)<sup>1</sup> demonstrating no increased risk in terms of COVID-19 outcomes. Early in the pandemic, UK IBD services were asked to identify those deemed “at risk”, but with little evidence to support risk stratification. In partnership with the patient charity Crohn's & Colitis UK (C&CUK), messages were rapidly provided to patients with IBD, linking them to an online patient self-assessment.<sup>2,3</sup>

The internet can be an influential source for improving patients' health knowledge with almost eight in ten individuals seeking health information via online search engines.<sup>4-8</sup> Using Google Trends (<http://google.com/trends>), we explored online search activity in the UK for search terms that included generic and trade names of commonly prescribed immunosuppressive drugs (azathioprine, mercaptopurine, infliximab, adalimumab, vedolizumab, ustekinumab and tofacitinib), ‘Crohn's coronavirus’ and ‘ulcerative colitis coronavirus’ in the time periods from January 2020 to early May 2020. We analysed C&CUK website activity over the same time period to explore total number of website visits and visits to specific COVID-19 advice pages and assessed its correlation (Pearson's coefficient) with the online search activity.

Search activity for azathioprine, adalimumab and infliximab increased dramatically in the 3rd week of February 2020 as shown in Figure 1A. This appeared to coincide with the first COVID-19 case in the UK (28th February 2020) and peaked just prior to UK lockdown (23rd March 2020). A similar trend and parallel time course with IBD search terms ‘Crohn's disease coronavirus’ and ‘ulcerative colitis coronavirus’ suggests that these search terms may be interlinked. A correlation was seen between mean relative search activity (IBD search terms) and mean relative search activity for azathioprine, adalimumab, infliximab ( $r = 0.89, P < 0.001$ ). Total hits for the C&CUK website only started to rise on 8th March 2020 suggesting a 2-week delay compared to Google searches (Figure 1B). However, C&CUK peak webpage activity was on 22nd March 2020 and thereafter the reduction mirrors Google search activity ( $r = 0.99, P < 0.001$ ).

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Using trends in internet searches may offer novel insights into public anxiety and curiosity but will only give indirect support for health information seeking behaviour. There may be confounding factors that may bias these findings such as limited access to the internet, especially amongst socio-economically deprived cohorts and elderly patients. Additionally, some patients were able to access advice via the charity helplines (phone and email services) and therefore website visits may not be entirely representative of total engagement with C&CUK.

Health information that is inaccurate and used improperly could be highly detrimental.<sup>9,10</sup> It is important to enable effective personal communication that considers perspectives, priorities and vulnerabilities of our patients. Ensuring processes that incorporate dynamic risk profiling, with mass targeted real-time health risk communication, will continue to help patients adapt to changing circumstances during times of crisis.

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## LINKED CONTENT

This article is linked to Taxonera *et al* paper. To view this article, visit <https://doi.org/10.1111/apt.15804>

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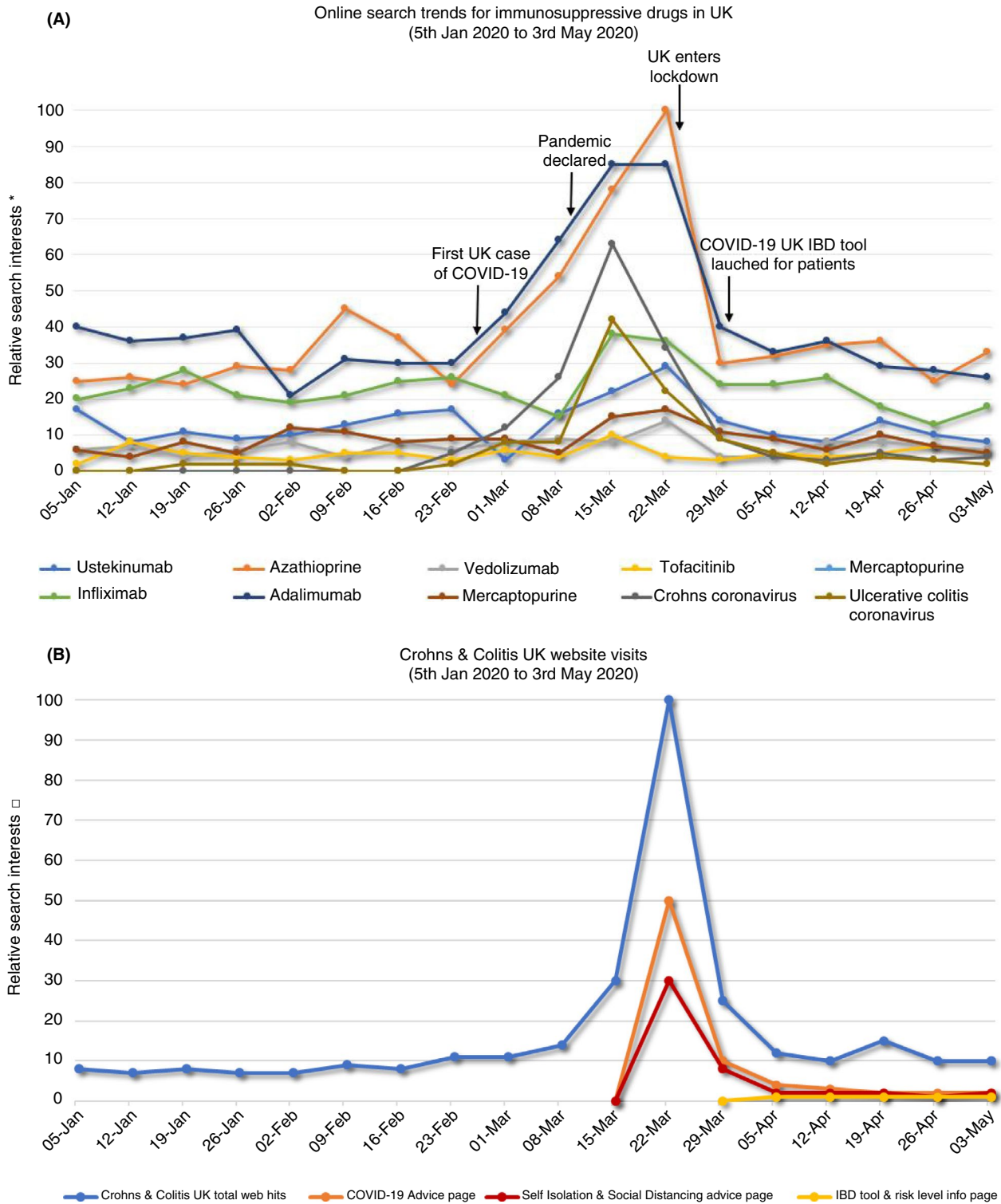
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**FIGURE 1** (A) Online search trends in the UK for commonly prescribed immunosuppressive drugs for immune mediated inflammatory diseases and IBD search terms linked with coronavirus between 5th January 2020 and 3rd May 2020. Surge in searches for immunosuppressive drugs specifically azathioprine, adalimumab and infliximab is linked to first documented cases in the UK and WHO declaration of pandemic and drugs parallels queries with coronavirus and IBD (B) Total visits to the Crohn's & Colitis UK website and visits to specific Crohn's & Colitis UK COVID-19 advice webpages between 5th January 2020 and 3rd May 2020. Website visit surge in 2nd week of March 2020 suggests a two week delay with Google searches for IBD and immunosuppressive drugs search terms with subsequent reduction coinciding with Google search activity ( $r = 0.99, P < 0.001$ ). \*Search interest relative to azathioprine. □ Website visits relative to total visits to the Crohn's & Colitis UK website (peak 135,160 visits on 22nd March 2020)

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