



JOURNAL CLUB

DECEMBER 2018 | KEY PAPER SUMMARIES

With Christmas right around the corner, this month's Journal Club explores some of the more Christmas-focused challenges in respiratory care research from over the years: from seasonal risk factors for COPD exacerbations, to Christmas trees as allergic triggers, as well as some unusual causes for chronic cough.

We hope you have a lovely end to your year and we look forward to seeing what 2019 has to hold for the future of respiratory disease research – see you then!

The Christmas season as a risk factor for chronic obstructive pulmonary disease exacerbations

Neil Johnston, Andrew McIvor, Kim Lambert, et al.

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It had been previously observed that exacerbations for COPD increased in the wintertime, particularly during Christmas season, a period that is also characterised by an increased prevalence of viral infections. These observations were based on the fact that healthcare use by COPD patients peaks during the Christmas season. However, it was unclear whether this was due to higher incidence during this period, increased socialisation and risk of infection, or lack of access to normal respiratory care by physicians. The researchers aimed to answer this question, and assess both the incidence as well as determinants of COPD exacerbations in patients from Hamilton, Canada, during the Christmas holiday season (1 Dec 2006 – 17 Jan 2007) vs. the rest of the winter season (18 Jan 2007 – 30 April 2007).

Researchers recruited and monitored 71 patients with a physician diagnosis of COPD with mixed disease severity (GOLD 0–4) who had at least one emergency department visit in the previous year for respiratory symptoms. For the duration of the study, subjects' medical care remained with their own physicians.

Patients transmitted daily diary sheets using fax machines, which were automatically scanned into a database to alert staff to respiratory symptoms that met specific criteria including increased symptom severity (by 2 levels of severity), symptom severity reaching levels 4 or 5, or patient reported symptoms of a respiratory infection. Compliance was remarkably high, with 95.4% of daily diary surveys returned.

This study reported an average of 6.7 COPD exacerbations per week in study participants (n=71) during the Christmas period compared with 4.3 COPD exacerbations per week during the rest of the study period (p=0.03). In patients with serious COPD (n=23; GOLD 3 and 4) incidence of COPD exacerbations was also higher during the Christmas period than the remainder of the study period (47% vs 32%; p=NS). A total of 44% of Christmas period exacerbations occurred with respiratory viral infections, compared with 32% which occurred during the rest of the study period (p=NS).

The authors speculated that the increased COPD exacerbations during Christmas were not necessarily the result of changes in healthcare resource use, but could be due to increased socialisation and exposure to respiratory viral infections. As travel and increased socialising during the Christmas period is likely to be even more common than it was when this study was first published, it is possible that within the modern NHS, COPD exacerbations in patients at Christmas time may be even more prevalent than previously estimated.

Christmas tree allergy: mould and pollen studies

Derek M Wyse and David Malloch

Can Med Assoc J 1970;103:1272–6.

Allergists occasionally obtain reports of respiratory symptoms in patients during the Christmas season. These symptoms, including sneezing, wheezing and even skin rashes, may not be severe enough to warrant medical attention, but may be underreported.

In this classic work, the authors systematically investigated some of the potential causes of Christmas tree allergies in patients who they assessed both retrospectively and prospectively. In 1561 patients reviewed retrospectively, only 1.66% reported, unprompted, a seasonal exacerbation of symptoms during Christmas. Prospectively, 1657 patients were questioned from June 1968 to June 1969. Of those with exposure to live Christmas trees (n=1225), 7.6% reported symptoms of allergy.

Clinical features of this seasonal exacerbation were further assessed in 100 patients: 94 from the prospective analysis, and 6 from the retrospective analysis. Most patients presented with symptoms including sneezing, wheezing, transitory rash and blockage of the nose. Symptoms were noted, in 71% of cases, when decorating the tree or within 24 hours. In 15% of cases, onset occurred three to four days after the tree was set up and worsened as the tree dried, which suggested balsam sensitivity was unlikely.

Mould studies from pine and spruce bark showed the presence of *Penicillium*, *Epicoccum* and *Alternaria*, but this did not impact the presence of airborne fungi in the houses where the trees were located. In contrast, pollen studies did demonstrate a release into the air of several types of pollens (weed, grass and tree), which could trigger symptoms. Based on the preponderance of symptoms closely associated with tree decorating, the authors concluded that oleoresins from trees were the most likely cause of Christmas tree allergy.

Very few subsequent studies have reported on this phenomenon, but results from this study suggest that thorough history taking, including questioning patients on variables associated with allergic reactions, can lead to a more complete picture of potential triggers. This allows clinicians to help their patients devise strategies to avoid and manage potential triggers more effectively.

Chronic cough in Swiss bagpipe player

Valeria Schindler, Christoph Gubler, Alexander Turk, et al.

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Case studies can reveal interesting considerations for both the diagnosis and management of seemingly common conditions. Chronic cough can be a symptom of many conditions: chronic bronchitis, asthma, allergy, bronchiectasis, postnasal drip or GORD. It can also be a side effect associated with prescribed medicines, such as ACE inhibitors. In some cases, a persistent cough may be a symptom of a more serious condition, such as lung cancer, heart failure, PE or tuberculosis.

In this unusual case report, published earlier this year, a 34-year-old man presented to the GI clinic with chronic cough.

These coughing episodes were exacerbated during periods in which he played bagpipes, as well as the morning after playing. In reviewing the patient's history, airway hyperreactivity was noted. Previous assessments excluded allergic bronchopulmonary aspergillosis, and identified no pathological findings on CT. Bronchoscopy with BAL and mucosal biopsy showed no pulmonary aetiology, although BAL showed elevated macrophage and bacteria, representative of the oral flora. The patient was previously prescribed budesonide and formoterol followed by 8 weeks of PPI therapy, both of which failed to reduce symptoms. After these tests, the patient was referred to the GI clinic, who, after an unremarkable endoscopy, performed a high-resolution oesophageal manometry and 24-hour multichannel intraluminal impedance-pH test.

The results of these tests demonstrated GORD. Interestingly, testing was also performed during bagpipe playing, and two reflux episodes were noticed, which were followed by elevated distal oesophageal acid exposure. It was noted that during bagpipe playing, abdominal/oesophageal pressure increased to 80–90 mmHg. The patient, rather than choosing pharmacologic intervention, modified his instrument to lower its resistance, and potentially the abdominal/oesophageal pressure. At a 7-month follow-up, the patient reported resolution of his cough, and repeat testing showed a 30% reduction in abdominal/oesophageal pressure with the new bagpipe modifications. No reflux episodes occurred during bagpipe playing, and the patient's acid exposure was reduced to below the criteria for GORD.

Authors concluded that in patients who play wind instruments and have an inconclusive pulmonary work-up for cough, GI causes should be considered. This case demonstrates both the need to think more broadly about the potential causes for unexplained patient symptoms, as well as potential strategies for their resolution.

The primary outcome was median survival time of an individual chocolate, and the main secondary endpoint was mean time for a box to be opened. A total of 8 boxes, totalling around 240 chocolates were used in this analysis.

In this study, the median survival time for a chocolate was 51 minutes (95% CI, 179–329) with the mean time taken for a box of chocolates to be opened after being placed on the ward as 12 minutes (95% CI, 0–24). The time to opening of Quality Street and Roses boxes did not differ significantly (19 vs. 5 minutes, $p=0.35$), although Quality Street chocolates survived longer than Roses chocolates ($p=0.014$). Healthcare assistants and nurses accounted for 28% of chocolates consumed (54 of 191 for each group), with doctors accounting for 15% of chocolates consumed (29 of 191). Interestingly, the timing of chocolate consumption followed an exponential decay process, with initial consumption occurring at a rapid phase, with the rate decreasing over time. The authors recommended further studies which could explore additional confounding factors including types of chocolate flavours. It would be of further interest for additional studies that assessed chocolate consumption rates in a primary care setting, or perhaps within editorial offices. Furthermore, it would be of interest to determine whether time of year plays a role, with increased consumption occurring during festive Christmas periods compared with the start of the new year. One wonders if there is an inverse correlation between amount of available sweets and survival time of individual chocolates.

Merry Christmas and a Happy New Year!

The survival time of chocolates on hospital wards

Parag R Gajendragadkar, Daniel J Moualed, Phillip LR Nicolson, et al.
BMJ 2013;347.
 doi: 10.1136/bmj.f7198

On a lighter note, and just in time for the holidays, a unique study has been identified which sheds light on the survival of chocolates on hospital wards within the UK. It has been well established that, particularly around the holiday season, chocolate consumption proliferates, as gifts and end-of-year treats become more prevalent. Many questions regarding chocolate consumption in the hospital setting have been postulated, and this study attempts to systematically address some of these questions regarding consumption of chocolates in a hospital ward environment.

Authors were interested in the length of time chocolates survived once opened, whether this was dependent on type of chocolate, and what type of hospital personnel were most likely responsible for chocolates being eaten. This exploratory study assessed 350 g boxes of two different types of commonly available chocolates: Quality Street (Nestlé, Switzerland) or Roses (Cadbury, UK). Boxes were placed side by side in the area where chocolates were normally placed (usually main nursing or reception areas). Observers recorded times boxes were opened, when chocolate was consumed and by whom (by category only).

Abbreviations/acronyms:

ACE = angiotensin-converting enzyme
BAL = bronchoalveolar lavage
COPD = chronic obstructive pulmonary disease
CT = computerised tomography
GI = gastrointestinal
GOLD = Global Initiative for Chronic Obstructive Lung Disease
GORD = gastro-oesophageal reflux disease
NS = not significant
PE = pulmonary embolism



These are synopses of articles as they appeared at the time of writing.
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