Highlights from this issue

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The Triumvirate

The UK prime minister, Boris Johnson, has described the UK approach to local flare-ups of COVID-19 as “whack-a-mole”. The game of “whack-a-mole”, which originated in Japan, involves the player scoring points for hitting electronic moles with a virtual mallet. Each time a mole is hit, another appears, and so the game has become a byword for a futile, repetitious task where recurrence may be inevitable. In this month’s issue, we play research “whack-a-mole” with repeated intervention and repetition — though hopefully without futility.

REPETITIO MATER STUDIORUM EST

Repetition (but not futility) was a feature of the paper by Sanja Stanojevic and colleagues (*see page 891*) from Toronto in this month’s journal. They analysed 47,938 FEV₁ measurements from 7885 healthy children aged 6–18 years and propose a “change score” for use in clinical decision making. Clinical utility was evaluated using spirometry and clinical data from a cystic fibrosis (CF) database. An improvement of 10% in FEV₁ is often taken as an index of good response to treatment (and conversely a fall in FEV₁ may indicate a pulmonary exacerbation of CF). Stanojevic and colleagues argue that using this 10% change rule of thumb may overestimate treatment response. These observed changes were often within the reproducibility limits of FEV₁ defined by the change score. So repetition in this case is not futile but leads to a robust prediction tool. Let’s hope Boris’ prediction of a “more significant return to normality” by Christmas has similar precision! Repetition is the mother of learning...

A RHINOVIRUS FOR ALL SEASONS

This month’s Airwaves will reach you as summer fades and we advance into autumn. In this issue of *Thorax* (*see page 882*), the GRACE study group explore the seasonal nature of rhinovirus infection, repeated across several years and in eleven European countries. The GRACE group collected respiratory specimens from adults with acute cough or lower

respiratory infection (seen in primary care) and subjected these to PCR. They demonstrated rhinovirus in 19% of symptomatic adults and 4% of asymptomatic controls. When the virus was genotyped, the authors found that rhinovirus-A was detected significantly more often in symptomatic individuals than rhinovirus-C, while rhinovirus-B infection is often found in asymptomatic patients. With no vaccine or treatment for the infection, it will be some time before medicine declares “open season” on rhinovirus...

MOLE-AR GAS VOLUME AS PART OF AN OUT OF BODY EXPERIENCE

To determine the molar volume of carbon dioxide, the mass and volume of a sample of carbon dioxide (CO₂) is measured at standard laboratory temperature and pressure. In the study by Lara Pisani and colleagues (*see page 897*), patients with marked elevation of carbon dioxide were targeted to investigate if extracorporeal CO₂ removal (ECCO₂R) would lower PaCO₂ in patients with chronic hypercapnia. Although only 6 out of the 10 patients completed the short term trial, PaCO₂ was lowered by between 23% and 47% and returned to baseline levels within 96 hours of ECCO₂R cessation. This approach of CO₂ dialysis is discussed in an accompanying editorial (*see page 824*), and the authors of the editorial do not necessarily consider that repeated studies of extracorporeal CO₂ removal will be as futile as “whack-a-mole”.

MISSING THE MOLE

When playing Whack-a-Mole, it may be viewed as a missed opportunity if the mole disappears without managing to deliver a whack. To avoid such an event in science, we employ systematic review and meta-analysis so we do not miss a potential treatment opportunity by combining the current available data from all sources. Saeed Alghamdi and colleagues (*see page 855*) used this approach to investigate the use of oscillatory positive expiratory pressure (OPEP) devices to augment sputum clearance in COPD. Pooled

analysis showed low-grade evidence that the use of OPEP devices was associated with decreased COPD symptoms and exacerbations (OR 0.37, 95% CI 0.19 to 0.72), and enhanced exercise capacity; 6 min walk distance (mean difference (95% CI), 49.8 m (14.2 m to 85.5 m); p=0.009). Although OPEP devices may improve outcome in COPD, we need more high quality studies to ensure we do not engage in a futile treatment.

PEELING THE AVOCADO

If you want to understand the cause of a fault you need to look beneath the bonnet. As it is with making guac-a-mole, you need to peel the avocado. In this edition of *Thorax*, Abramson and colleagues (*see page 864*) have used data from the Australian IPF Registry to remove the peel of Idiopathic Pulmonary Fibrosis (IPF). They find that a family history as well as exposure to secondhand smoke, respirable dust and asbestos were all associated with increased risk of IPF. It appears that IPF is due to a veritable classic selection of dips rather than a single mole to be whacked.

TARGETTING THE MOLE

It is evident that Whack-a-Mole is a blunt and unsophisticated game which could have a number of unintended consequences. For example in pulmonary fibrosis is the mole to be whacked the epithelial cell, fibroblast or macrophage? In this issue of *Thorax*, Guiot and colleagues (*see page 870*) assess the role of macrophage derived endosomes on the function of epithelial cells and fibroblasts. They show that endosomes containing miR-142-3p if taken up by epithelial cells or fibroblasts they can reduce fibrotic signalling by down-regulating TGFβ receptor one and pro-fibrotic genes. They also showed that the levels of miR-142-3p was associated with high levels of macrophages in the sputum and plasma of patients with IPF suggesting that if you whack the wrong mole than you might have counter-productive consequences.

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