Ann Robinson’s research reviews—8 December 2022

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A bout de souffle

My mum was a smoker, and watching her struggle to breathe as chronic obstructive pulmonary disease (COPD) took hold was heartbreakingly difficult. When your main activity of daily living is breathing, it doesn’t leave much physical or psychological strength for anything else. The treatment options are limited and increasingly ineffective as the condition progresses. Low dose opioids are commonly tried for symptom control, but evidence is sparse.

A small but notable Australian trial of 156 people with COPD and chronic breathlessness (MRC modified breathlessness scale score 3 or 4) found that a week of daily, low dose, oral, extended release morphine (8 or 16 mg/day) didn’t significantly improve the intensity of worst breathlessness compared with placebo. The daily step count didn’t improve either, even at higher doses of up to 48 mg/day. More people who received morphine had serious adverse events such as increased breathlessness, morphine related symptoms, and respiratory failure than those taking placebo (33% v 12%), and overall rates of adverse events that emerged during treatment with 8 or 16 mg/day of morphine or with placebo were high (64%, 78%, and 48%). The high rates of side effects may partly explain why only 42% completed three weeks of treatment and the high dropout rate across all groups.

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Organ rally

Bike weeks are huge events in the US, with the Sturgis Motorcycle Rally in South Dakota attracting over 400 000 people a year. In one of the darkest pieces of research I’ve come across, this cross sectional study using the US national transplant registry for 2005 to 2021 of more than 10 000 organ donors and 35 000 recipients, found that there were 21% more donors and 26% more recipients per day in the regions around seven mass motorbike rallies compared with the four weeks before and after the rallies. Several factors could be at play here; there may have been greater general motorbike use during rallies in the same way that many of us brush off our tennis rackets during Wimbledon; the risks associated with any large scale event such as road congestion; tired bikers travelling long distances to attend a rally being more likely to have a crash; or health services gearing up and availability limit its use.

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Thin pickings

Losing weight is incredibly hard and keeping it off is even harder. When weight loss is important to control diabetes, GLP-1 agonists (such as exenatide) and SGLT-2 inhibitors (such as empagliflozin) are often prescribed, though the weight loss is modest at best. Bariatric surgery works well, but cost, acceptability, and availability limit its use.

A novel drug—LY3437943—that combines two incretins (gut hormones that stimulate insulin production in the pancreas), GIP, and GLP-1, and a glucagon receptor agonist has shown some promise in lipid, glucose, and weight control. This 12 week, phase 1b, multiple ascending dose study found that a weekly subcutaneous dose of LY3437943 was safe with only mild and transient gastrointestinal side effects and a dose-dependent increase in pulse rate. Glucose levels, body weight, and blood pressure all fell significantly compared with dulaglutide (a GLP-1 receptor agonist) alone. Bigger, longer studies are needed to find out whether the rise in pulse rate is harmful and whether the drug’s positive impact on weight and diabetes control can be reproduced and sustained.

New drugs that work better than existing ones are welcome, but, given that diabetes and obesity are rising fastest in the poorest countries, effective, non-pharma public health measures are sorely needed.

*Thin pickings


Masking the answer

Are N95 masks, which provide a tighter fit and more particle filtration, better than the disposable type of medical masks in protecting healthcare workers from covid-19? This multicentre, randomised, non-inferiority trial of just over a thousand healthcare workers in Canada, Israel, Pakistan, and Egypt who provided routine direct care to patients with covid-19 between 2020 and 2022, found that, over a 10 week period, covid occurred in similar numbers in the medical mask group compared with the N95 group (10.46% v 9.27%).

The overall estimates ruled out a doubling in the chance of getting confirmed covid-19 when using medical masks instead of N95 respirators, but there was a lot of heterogeneity between countries (including differences in baseline antibody levels, circulating variants, and vaccination levels) which limit the reliability of these findings. The study asked an important question but ultimately failed to answer it.* Ann Intern Med doi:10.7326/M22-1966*
Attention all drivers
This study of 152 registered US drivers aged 16-19 years with attention deficit hyperactivity disorder (ADHD) evaluated a computerised skills-training program to reduce long glances of more than 2 seconds away from the road, something that is known to contribute to accidents. In simulated driving after the training, people in the intervention group took their eyes off the road less than those in the control group, and there was less veering out of lane. In real world driving in the year after training, the trained group had lower rates of long glances away from the road during bursts of acceleration and lower rates of collisions and near collisions.


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