of the Indian population was found to be optimal in the range of 128.6–204.0 µg/L, with an average salt intake of 11.9 g/day.[1] However, when we work towards honouring our commitments in the global targets for the prevention and control of NCDs, which will be a major boost for tackling the emerging burden of NCDs in India,[2] 30% reduction of salt consumption will reduce salt intake to 8.3 g/day, by 2025. The above shift will cause a decrease in the iodine intake through salt, and iodine deficiency.[7] Hence, we face two paradoxical problems—salt-restriction and iodine-adequacy that might have contradictory solutions. However, they need not necessarily be contradicting. The objectives of iodine adequacy and salt restrictions are compatible and can coexist.[6]

The twain shall meet: Paradigm shift

At the national level, close collaboration between the salt-iodization and salt-reduction programmes is required so that their aims are congruent and not contradictory.[8] Integration at all possible levels and pooling in resources from various programmes involved in IDD control, NCD prevention and maternal health, can be worked out.[6] Iodine concentration in salt during fortification can be titrated according to the levels of salt intake and mUIC of the population.[6]

Policy-making

Achieving the goal of salt reduction and IDD elimination will require bringing together a multidisciplinary team of experts in health and other fields including public health (treatment and prevention), law, advertising, behavioural psychology, economics, behavioural economics, commerce and trade and political science.[6] Policies on food industries must include the mandatory use of adequately iodized and a reduced, uniform quantity of salt in processed food across the country.[5,6]

Communication and advocacy

Potentially conflicting messages from the health sector, for example, 'eat salt to ensure you get adequate intake of iodine'; 'reduce salt to prevent CVDs', must be avoided. Better, apt, common and crisp messages, imbibing both salt restriction and iodine adequacy, such as 'Low but iodized salt', 'Little salt, but all iodized' in multiple languages must be created and disseminated at the consumer level.[6] Under 'The Eat Right' Movement, the Food Safety and Standards Authority of India (FSSAI) has asked food manufacturers to voluntarily reduce the content of salt in products and implement mandatory labelling of contents on food packets.[9]

Monitoring and surveillance

The data available from the current monitoring and assessment surveys of IDDs and its programme are neither representative nor in line with the guidelines of WHO.[10] Community level iodine surveys can be incorporated as a part of surveys such as the National Family Health Survey, to be nationally representative and economically viable. Pregnant women's mUIC and urine sodium levels can be evaluated by utilizing the ANC clinics at the primary health centres (PHCs) and tertiary care hospitals.

The proportion of iodine in the diet contributed by various sources other than salt, becomes relevant as the mUIC has been found to be adequate even among households consuming non-iodized salt.[1] Hence, monitoring of iodine intake from sources other than salt must be done.[11] The association between reduced salt intake, adequately iodized salt and mUIC must be researched further, as studies and surveys have shown that even with restricted levels of salt intake, i.e. <5 g/day, and inadequately iodized salt consumption, subjects were iodine sufficient.[1,7,11]

Alternative vehicles for iodine fortification and special groups

It is important to recognize specific population groups (e.g. pregnant women and lactating women) require higher iodine intake than others and hence may need to be targeted in other ways for the adequate consumption of iodine such as potassium iodide tablets and iodized oil. In addition to strengthening the salt iodization programme, it is essential to look for additional vehicles and modalities to deliver iodine.

Conclusion

Salt-restriction is feasible and can be effective in combination with salt-iodization. The initiatives on control of NCDs, which will occupy the centre-stage in India in the coming days, should tag along the compatible and vital public health campaign of IDD control. The integration of the strategies must be prioritized to reap the twin benefits in IDD and NCD control.

Conflicts of interest. None declared

REFERENCES

1 National Iodine and Salt Intake Survey; 2015. Available at *www.ign.org/cm_data/IDD_nov15_india.pdf* (accessed on 10 Jul 2018).
2 India: Health of the Nation's States; 2017. Available at *www.healthdata.org/sites/default/files/files/policy_report/2017/India_Health_of_the_Nation%27s_States_Report_2017.pdf* (accessed on 10 Jul 2018).
3 Global Monitoring Framework and Voluntary Global Targets for the Prevention and Control of NCD; 2013. Available at *www.who.int/nmh/global_monitoring_framework/en/* (accessed on 10 Jul 2018).
4 Cook NR, Cutler JA, Obarzanek E, Buring JE, Rexrode KM, Kumanyika SK, *et al*. Long term effects of dietary sodium reduction on cardiovascular disease outcomes: Observational follow-up of the trials of hypertension prevention (TOHP). *BMJ* 2007;**334:**885–8.
5 World Health Organization. *Assessment of iodine deficiency disorders and monitoring their elimination: A guide for programme managers*. 3rd ed. World Health Organization; 2007. Available at *www.who.int/nutrition/publications/micronutrients/iodine_deficiency/9789241595827/en/* (accessed on 10 Jul 2018).
6 World Health Organization. *Salt reduction and iodine fortification strategies in public health*. World Health Organization; 2014. Available at *www.who.int/nutrition/publications/publichealth_saltreduc_iodine_fortification/en/* (accessed on 10 Jul 2018).
7 Simpson FO, Thaler BI, Paulin JM, Phelan EL, Cooper GJ. Iodide excretion in a salt-restriction trial. *N Z Med J* 1984;**97:**890–3.
8 World Health Organization. *Expert Consultation on Salt as a Vehicle for Fortification*. World Health Organization; 2007. Available at *www.who.int/nutrition/publications/micronutrients/978924159678/en/* (accessed on 10 Jul 2018).
9 'The Eat Right Movement' Launched: A leap forward to combat negative nutritional trends to fight lifestyle diseases. New Delhi; 2018. Available at *www.fssai.gov.in/home*, (accessed on 11 Jul 2018).
10 Pandav CS, Yadav K, Srivastava R, Pandav R, Karmarkar MG. Iodine deficiency disorders (IDD) control in India. *Indian J Med Res* 2013;**138:**418–33.
11 Grzesiuk W, Dabrowska J, Osikowska-Loksztejn M, Kondracka A, Kolasińska K, Bar-Andziak E, *et al*. Effectiveness of iodine prophylaxis in hypertensive patients on salt restricted diet. *Pol Arch Med Wewn* 2005;**113:**147–54.

Aravind P. Gandhi
Department of Community Medicine
Vardhman Mahavir Medical College and Safdarjung Hospital
New Delhi
India
aravindsocialdoc@gmail.com

Appropriate terminology

I read with interest the editorial on 'Falls research is coming of age' by Ashish Goel.[1] It is a thoughtful, thought-provoking and elegant exposition of the importance of research on falls in India. However, I must take issue with one aspect of the article. Goel's use of the term 'inmates' to describe older persons living in long-term residential facilities is wrong and de-humanizes the very group he seeks to

champion. Alternatives could have been 'clients', 'residents' or, simply, 'people'.

REFERENCE

1. Goel, A. Falls research is coming of age. *Natl Med J India* 2018;**31:**321–3.

Harpreet S. Kohli
11 Branklyn Crescent
Glasgow
Scotland
UK

Mobile teeth: An underestimated risk factor for lung infections in critical care settings

Neglected teeth create the risk of aspiration of infected material when the oral cavity is instrumented in critical care settings. In a critical care unit, due to the severity of illness and urgency of intervention, attention to neglected dentition may either be missed or be given less attention. Unexplained failure of recovery and prolonged illness may originate from unrecognized aspiration of a tooth or fragments of dental calculus. We draw attention to this under-recognized hazard and outline a strategy for prevention.

Elderly individuals with comorbid conditions often have neglected teeth that are carious, mobile or both. This may happen because comorbid conditions impede the visual and cognitive faculties and motor skills needed to perform oral healthcare by one's self. Badly-broken teeth may be deemed hopeless and would be indicated for removal rather than restoration. Reasons for deferring and avoiding extraction of these teeth typically include economics, physical inability to reach a dentist, patients' wishes, limited motor abilities, comorbid conditions that complicate delivery of dental services, fear of dental procedures or other disorders that are of greater concern to patients and caregivers than oral health. As these teeth are often painless, they may be retained and remain mobile in the oral cavity indefinitely.

Pulmonary infections linked to dental causes in elderly individuals are conventionally thought to be due to dental abscesses that result in aspiration of pus found in the mouth. However, the role of mobile teeth and root stumps in the aetiopathogenesis of lung abscess may be underestimated.[1] Loose teeth are easily displaced out of their sockets by rapid intubation or by a hastily placed oropharyngeal airway or even an urgently positioned and manipulated laryngoscope blade. These acute situations happen in emergency departments in cases of respiratory depression or arrest and other critical care settings. Even well-intentioned daily oral care performed by nursing staff can potentially dislodge a loose tooth that is precariously attached to bone and gingiva. The resultant aspiration of tooth or root fragment can be the cause of subsequent pulmonary suppuration. Very small fragments may be missed on plain film radiographs of the chest or abdomen.

Teeth that are mobile also tend to be uncomfortable while brushing and when neglected tend to collect food debris that calcifies over weeks to become hard calculus. Calculus, which is a calcified dental plaque, may be missed in a cursory oral examination since with staining by food and beverage it takes on the colour of teeth. Larger chunks of calculus are a threat to the health of the airway because they are friable and can be easily chipped off by a laryngoscope blade and carried into the respiratory tract with their content of periodontal pathogens.[2] Having a lower calcium content than dental enamel, a small portion of calculus is unlikely to be noticed in a plain radiograph.

It is unwise to screen for loose teeth in emergencies and waste critical moments that could prevent a dangerous desaturation or other condition necessitating urgent intervention. However, a rapid dental examination must be performed with documentation at the earliest available opportunity in critical care units. We recommend that at least a rudimentary periodic dental examination of elderly individuals be performed by their physicians during routine check-ups. This is especially relevant to patients in remote rural locations with no regular access to professional dental care. Such mobile teeth can be identified for removal.[3] Medical students must liaise with dental professionals during their training to gain familiarity with the oral cavity and its structures. Periodic oral examinations by medical professionals are justified if they reduce avoidable morbidity, mortality and cost-to-the-state towards providing critical care.

Conflicts of interest. None declared

REFERENCES

1 Oh E, Weintraub N, Dhanani S. Can we prevent aspiration pneumonia in the nursing home? *J Am Med Dir Assoc* 2004;**5:**174–9.
2 Terpenning MS, Taylor GW, Lopatin DE, Kerr CK, Dominguez BL, Loesche WJ, *et al.* Aspiration pneumonia: Dental and oral risk factors in an older veteran population. *J Am Geriatr Soc* 2001;**49:**557–63.
3 Yoneyama T, Yoshida M, Ohrui T, Mukaiyama H, Okamoto H, Hoshiba K, *et al.* Oral care reduces pneumonia in older patients in nursing homes. *J Am Geriatr Soc* 2002;**50:**430–3.

Nakul Uppal
Department of Dentistry
All India Institute of Medical Sciences
Raipur
Chhattisgarh
drnakul@gmail.com

Ajay V. Venkatapathy
Flinders Medical Centre
Intensive and Critical Care Unit
Bedford Park
South Australia

Deep Shikha
Raipur
Chhattisgarh