Preventive Metabolic Medicine in Primary Care

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Abstract

The responsibility, and right, of promoting metabolic health, and preventing metabolic disease, is that of the primary care physician. This communication lists the facets of metabolic care in a simple (Seven Rs) manner, connecting them with the various levels of prevention. All individuals should be counselled about regulation of lifestyle and mindstyle (primordial prevention). Those at risk of metabolic disease should reduce/redistribute their energy intake, and rescue overburdened storage system by using energy through exercise (primary prevention). Persons with established disease will need physio-friendly therapy to replenish and restore the physiological buffering of the body (secondary prevention). In persons with target organ damage, resilience of organ- systems can be enhanced, and existing damage repaired, by using modern drugs (tertiary prevention). Quaternary prevention and quinary prevention must be practiced. Reframing the Rs of preventive metabolic medicine, using the rubric of levels of prevention, will make this discipline more appealing to all.

Keywords: Community medicine, diabetes, family medicine, obesity, prevention, primary health care

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Introduction

Medicine, through advances in basic science as well as pharmacology, is able to not only manage, but prevent disease as well. The ability to promote health, prevent disease, and protect life, is visible through the rapidly increasing life expectancy of humankind.[1] While earlier challenges such as infectious disease have largely being controlled, newer diseases have become more common. These conditions, mostly non-communicable and vasculo-metabolic in nature, call for the strengthening of preventive metabolic medicine.

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Evolution, Evidence and Exaptation

Preventive metabolic medicine has come of age in recent years. Apart from evidence regarding the benefits of well-designed lifestyle and diet modification programmes (Look AHEAD) in diabetes,[2] there is data to show that timely, and appropriate management of diabetes leads to benefit that are evident up to half a century later (UKPDS, 44 years follow up).[3] Not only that, drugs that were earlier used to manage type 2 diabetes are now being used to prevent worsening of heart failure and chronic kidney disease as well. These include glucagon-like peptide 1 receptor agonists (GLP1RA) such as liraglutide, semaglutide, dual peptide agonists like tirzepatide, and sodium glucose transporter 2 inhibitors (SGLT2i), e.g., canagliflozin, dapagliflozin and empagliflozin.[4-6] Other drugs, such as the non-steroidal mineralocorticoid receptor (MRA) finerenone, have also demonstrated their utility in the prevention of metabolic disease.[7]

Right, Responsibility and Reality

The Responsibility, and Right, of promoting health, preventing disease, and protecting life, should be that of the primary care physician. These two Rs are supported by a third one, Reality: the bulk of health care is sought from, and provided by, primary care physicians, rather than specialists. As the burden of metabolic disease, and its complications, it becomes incumbent on primary care physicians to offer metabolic medical care to the public.[8]

The Six Levels of Metabolic Prevention

Table lists the facets of such care, in a simple manner. All individuals should be counselled about the need to regulate their lifestyle and mindstyle (primordial prevention). Those at risk of metabolic disease, such as obesity and diabetes, should be offered advice to reduce or redistribute their energy intake, and rescue overburdened storage system by using energy through exercise (primary prevention). It may be necessary to replenish and restore the physiological buffering, or homeostasis of the body with the use of appropriate therapy (secondary prevention). This must be done in a timely manner, using physio-friendly drugs.[9] At times, target organ damage may occur. Resilience of organ-systems can be enhanced, and existing damage repaired, by using modern drugs (tertiary prevention).

At the same time, one must be cautious. The concepts of

Table: The Seven Rs -Facets of preventive metabolic medicine.

Regulate lifestyle and mindstyle
▪ Lifestyle modification
▪ Behavioural therapy
Reduce and/or redistribute energy intake
▪ Calorie restriction
▪ Intermittent fasting/timed fasting
▪ Calorie restriction mimetics, e.g., SGLT2i, GLP1RA
Rescue and use energy stores
▪ Exercise
Replenish or restore buffering capacity
▪ Anti-oxidants, nutrients
▪ Appropriate pharmacotherapy
Repair target organ damage, with Resilience
▪ SGLT2i
▪ GLP1RA
▪ MRA: finerenone
Revisit diagnostic and therapeutic strategies to avoid mis diagnosis and mismanagement
Repeat right information; Redact misinformation at all levels

quaternary prevention (avoidance of over-diagnosis and over-treatment) and quinary prevention (tackling misinformation, promoting the right information) must be practiced at all levels, especially primary health care.[10,11]

Reframing the Rs of preventive metabolic medicine, using the rubric of levels of prevention, will make this discipline more acceptable, to policymakers, planners and primary health professionals alike. Preventive metabolic medicine must be integrated into community and family medicine curricula and practice.

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