REVIEW ARTICLE

OBESITY – A GLOBAL BURDEN, CRUCIAL PROBLEM FOR THE SOCIETY

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Abstract :

Objectives: *To aware doctors, patients, food producers and consumers.*

Data source: *Online search via Google, 70 articles were down loaded, 52 valid papers were selected. Only 12 full text articles were eligible for review.*

Obesity rates have increased sharply over the past 30 years, creating a global public health crisis. The impact of obesity on morbidity, mortality, and health care costs is profound. Obesity and weight related complications exert a huge burden on patient suffering and social costs. In recent years, exciting advances have occurred in all 3 modalities used to treat obesity: lifestyle intervention, pharmacotherapy, and weight-loss procedures including bariatric surgery. Obese individuals lose approximately 6 to 8 kg (approximately 6% to 8% of initial weight) with 6 months of participation in a high-intensity lifestyle intervention ($ 14 treatment visits) consisting of diet, physical activity, and behavior therapy. Such losses reduce progression to type 2 diabetes in at-risk people and decrease blood pressure and triglyceride levels. All diets, regardless of macronutrient composition, can produce clinically meaningful weight loss (.5%) if they induce a deficit of 500 kcal/d. Physical activity of 150 to 180 min/week yields modest short-term weight loss compared with diet but contributes to improvements in obesity-related conditions. Gradual weight regain is common after lifestyle intervention but can be prevented by continued participation in monthly weight loss maintenance sessions, as well as by high levels of physical activity (ie, 200 to 300min/wk). Patients unable to reduce satisfactorily with lifestyle intervention may be candidates for pharmacotherapy, recommended as an adjunct. Five medications have been approved by the US Food and Drug Administration for chronic weight management, and each has its own risk/benefit profile. The addition of these medications to lifestyle intervention increases mean weight loss by 2.5 to 8.9 kg compared with placebo. Patients with severe obesity who are unable to reduce successfully with lifestyle intervention and pharmacotherapy are eligible for bariatric surgery, including Roux-en-Y gastric bypass, sleeve gastrectomy, or adjustable gastric banding.

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Introduction

Chronic diseases and obesity emerged as leading health concerns over the past century through shared environmental changes. Infectious diseases, which in 1900 were the main cause of death are now largely controlled[1].Obesity is a substantial public health crisis in the United States and in the rest of the industrialized world. The prevalence is increasing rapidly in numerous industrialized nations worldwide. This growing rate represents a pandemic that needs urgent attention if obesity's potential toll on morbidity, mortality, and economics is to be avoided.[2-4] Weight loss can improve all of these outcomes[4,5] Expert panels from the National Institutes of Health[5] ,WHO[6], and several professional societies have recommended that individuals with obesity try to lose 5% to 10% of body weight to improve health and quality of life.[4,7] This can be achieved with a

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comprehensive lifestyle intervention that provides instruction in diet, physical activity, and behavior therapy[4-7]

Definition:

Overweight and obesity are defined as abnormal or excessive fat accumulation that may impair health. Body mass index (BMI) is a simple index of weight-for-height that is commonly used to classify overweight and obesity in adults. It is defined as a person's weight in kilograms divided by the square of his height in meters (kg/m^2)[5]. The

WHO defines overweight as a BMI of 25.0 to 29.9 kg/m2, which is associated with increased risk of cardiovascular disease (CVD) morbidity[4,5].Obesity begins at a BMI of 30.0 kg/m2 and is divided into three classes (30.0 to 34.9, 35.0 to 39.9, and $ 40 kg/m2), with the class three labeled severe / morbid obesity. These cut points are based on findings that, in general, the greater the BMI, the greater the risk of CVD, type 2 diabetes, and all-cause mortality.

Prevalence of obesity:

In 2016, more than 1.9 billion adults aged 18 years and older were overweight. Of these over 650 million adults were obese.Overall, about 13% of the world's adult population (11% of men and 15% of women) were obese in 2016.The worldwide prevalence of obesity nearly tripled between 1975 and 2016[5].

In 2016, an estimated 41 million children under the age of 5 years were overweight or obese. Once considered a high-income country problem, overweight and obesity are now on the rise in low- and middle-income countries, particularly in urban settings. In Africa, the number of overweight children under 5 has increased by nearly 50 per cent since 2000. Nearly half of the children under 5 who were overweight or obese in 2016 lived in Asia[5].

Over 340 million children and adolescents aged 5-19 were overweight or obese in 2016.The prevalence of overweight and obesity among children and adolescents aged 5-19 has risen dramatically from just 4% in 1975 to just over 18% in 2016. The rise has occurred similarly among both boys and girls: in 2016 18% of girls and 19% of boys were overweight[5].

Bangladesh is traditionally known for the home of world's one of the largest number of underweight children.

But a new study, led by the Imperial College London and the World Health Organization established experts' apprehension that the country is in fact facing the 'dual burden' of both malnutrition and obesity[6].

More children and teenagers in Bangladesh are obese now than before like many other developing countries, a new study suggests blaming food marketing, policies, and pricing[6].

In Bangladesh, the obesity among boys was found 3 percent in 2016 which was only 0.03 percent in 1975. Among girls, the rate jumped to 2.3 percent from almost nil four decades ago[6].

Action to curb obesity is a key element of the 2030 Agenda for Sustainable Development. SDG (Sustainable Development Goal) target 2.2 commits the world to ending all forms of malnutrition by 2030, including overweight and obesity. SDG (Sustainable Development Goal) target 3.4 commits the world to reducing premature deaths from NCD(non communicable disease)s by one-third by 2030, including through prevention of obesity[5].

Mechanism of obesity:

a) Environment

Factors favoring a positive energy balance and weight gain over the past several decades include increasing per capita food supplies and consumption, particularly of high-calorie, palatable foods that are often served in large portion[7,8]; decreasing time spent in occupational physical activities and displacement of leisure-time physical activities with sedentary activities such as television watching and use of electronic devices[9,10]; growing use of medicines that have weight gain as a side effect [11]; and inadequate sleep.[12] These and many other factors, in combination with medical innovations that have reduced mortality from infectious diseases and prolonged thelifespan, set the foundation for the conjoint epidemics of chronic disease and obesity.[13]

b) Genetic Factors

Not all people exposed to prevailing urban and rural environments become obese,which suggests the existence of underlying genetic mechanisms operating at the individual level. Although estimates vary, twin, family, and adoption studies show that the rate of heritability of BMI is high, ranging from 40 to 70%.[14]Eleven rare monogenic forms of obesity are now recognized including a deficiency of the leptin and melanocortin-4 receptors, which are expressed mainly in the hypothalamus and are involved in neural circuits regulating energy homeostasis.[15] Heterozygous mutations in the melanocortin-4 receptor gene are currently the most common cause of monogenic obesity, appearing in 2 to 5% of children with severe obesity.[15,16] A widely used strategy to discover polygenic mechanisms conferring susceptibility to common obesity involves screening the entire genome in large samples with the goal of identifying single nucleotide polymorphisms

associated with BMI and other traits linked with obesity.[15]Over 300 loci have been identified in genome wide association studies, although collectively these loci account for less than 5% of individual variation in BMI and adiposity traits.[15]The most prominent signals using this approach are the *FTO* gene variants; persons carrying one or two copies of the risk allele have a 1.2-kg or 3-kg increase in weight, respectively, as compared with persons without copies of the allele.[15]Whole-exome and whole-genome sequencing offers the possibility of identifying new molecular targets and improved risk-prediction markers.

C) Energy-Balance Dysregulation:

Genes and environment interact in a complex system that regulates energy balance, linkedphysiological processes, and weight.[15,16] Two sets of neurons in the hypothalamic arcuate nucleus that are inhibited or excited by circulating neuropeptide hormones control energy balance by regulating food intake and energy expenditure.

Pathophysiological Features

a) Anatomical effects:

With weight gain over time, excess lipids are distributed to many body compartments. Subcutaneous adipose tissue holds most of the stored lipid at a variety of anatomical sites that differ in metabolic and physiological characteristics.[17] .Visceral adipose tissue is a smaller storage compartment for lipids than is subcutaneous adipose tissue, with omental and mesenteric fat mechanistically linked to many of the metabolicdisturbances and adverse outcomes associated with obesity.[17,18] Adipose tissue surrounds the kidney, and the blood-pressure increase with renal compression may contribute to the hypertension frequently observed in patients who are obese.[19] Obesity is often accompanied by an increase in pharyngeal soft tissues, which can block airways during sleep and lead to obstructive sleep apnea.[22] Excess adiposity also imposes a mechanical load on joints, making obesity a risk factor for the development of osteoarthritis.[23] An increase in intra-abdominal pressure purportedly accounts for the elevated risks of gastroesophageal reflux disease, Barrett's esophagus, and esophageal adenocarcinoma among persons who are overweight or obese.[24]

b) Metabolic and Physiological effects

Adipocytes synthesize adipokines (cell-signaling proteins) and hormones, the secretion rates and effects of which are influenced by the distribution and amount of adipose tissue present.[18] Excessive secretion of pro-inflammatory adipokines by adipocytes and macrophages within adipose tissue leads to a low-grade systemic inflammatory state in some persons with obesity.[18]Hydrolysis of triglycerides within adipocytes releases free fatty acids, which are then transported in plasma to sites where they can be useful metabolically. Plasma free fatty acid levels are often high in patients with obesity, reflecting several sources that include the enlarged adipose tissue mass.[18]

In addition to being found in adipose tissue, lipids are also found in liposomes, which are small cytoplasmic organelles in proximity to the mitochondria in many types of cells.[25] With excess adiposity, liposomes in hepatocytes can increase in size (steatosis), forming large vacuoles that are accompanied by a series of pathologicalstates, including nonalcoholic fatty liver disease, steatohepatitis, and cirrhosis.[26] Accumulation of excess lipid intermediates (e.g., ceramides) in some non-adipose tissues can lead to lipotoxicity with cellular dysfunction and apoptosis.[18] Elevated levels of free fatty acids, inflammatory cytokines, and lipid intermediates in non adiposetissues contribute to impaired insulin signaling and the insulin-resistant state that ispresent in many patients who are overweight or obese.[18],[27] Insulin resistance is also strongly linked with excess intra abdominal adipose tissue.[18],[27] This constellation of metabolic and anatomical findings is one of several pathophysiological mechanisms underlying the dyslipidemia of obesity (elevated fasting plasma triglyceride andlow-density lipoprotein cholesterol levels and low levels of high-density lipoprotein cholesterol), type 2 diabetes, obesity-related liver disease, and osteoarthritis. Elevated bioavailable levels of insulin-like growth factor 1 and other tumor promotingmolecules have been implicated in the development of some cancers.[28]Chronic overactivity of the sympathetic nervous system is present in some patients withobesity and may account in part for multiple pathophysiological processes, including high blood pressure.[19] Heart diseases, stroke, andchronic kidney diseases all have as their main pathophysiological mechanisms high blood pressure and the cluster of findings associated with insulin resistance, obesity-associated dyslipidemia, and type 2 diabetes.

c) Psychological effects

Obesity is associated with an increased prevalence of mood, anxiety, and other psychiatric disorders, particularly among persons with severe obesity and those seeking bariatric surgery.[27],[30] Causal pathways between obesity and psychiatricdisorders may be bidirectional.[31]

d) Impact of weight loss

When a negative energy balance is induced by reducing food intake, increasing activity levels, or both, thermodynamic prediction models accuratelydefine the weight-loss trajectory in adherentpatients.[32]Most patients reach a weightloss earlier than predicted by these models, after only several months, and gradually gain

weight thereafter. The regained weight is related to decreased adherence to diet and activity prescriptions and to increasingly recognized endogenous compensatory mechanisms.16,[33]Moderate weight loss, defined as a 5 to 10% reduction in baseline weight, is associated with clinically meaningful improvements in obesityrelated

metabolic risk factors and coexisting disorders.[11],[34],[35] A 5% weight loss improves pancreatic â-cell function and the sensitivity of liver and skeletal muscle to insulin; a larger relative weight loss leads to graded improvements in key adipose-tissue disturbances.[36] These salutary effects were observed clinically in overweight andobese patients with type 2 diabetes who were treated with an intensive lifestyle intervention in the Look AHEAD (Action for Health in Diabetes) study.[37] At 1 year, patients had a mean weight loss of 8.6% of baseline weight, which was accompaniedby significant reductions in systolic and diastolic blood pressure (of 6.8 and 3.0 mm Hg, respectively) and levels of triglycerides (of 30.3 mg per deciliter [0.34 mmol per liter]) and glycosylated hemoglobin (of 0.64%). A graded response was observed for these weight-sensitive measures, with larger weight losses accompanied by greater improvements.[38]Moderate weight loss can translate to disease prevention in high-risk persons. Patients with overweight or obesity and impaired glucose tolerance who received an intensive lifestyle intervention in the Diabetes Prevention Program hada mean weight loss of 5.6 kg at 2.8 years and a 58% relative reduction in the risk of type 2 diabetes.[39] The incidence of type 2 diabetes remained 34% below the incidence in the control group at 10 years of follow-up, even though the participants in the intervention group had, on average, returned to close to their baseline weight.[40]

Mean losses of 16 to 32% of baseline weight produced by bariatric surgery in patients with severe obesity may lead to disease remission, including remission of type 2 diabetes in patients who undergo bariatric surgery, particularly Rouxen-Y gastric bypass.[41-46] Significant reductions in all-cause mortality have also been shown in observational studies of surgically treated patients.[47,48] Although weight loss is an effective, broadacting therapeutic measure, not all risk factors and chronic disease states respond equally well.[34,35,38] Severe obstructive sleep apnea, for example, improves but rarely fully remits in response to weight-loss treatments, including bariatric surgery.[22] Moreover, the beneficial clinical effects of moderate weight loss achieved with intensive lifestyle intervention did not reduce morbidity and mortality associated with cardiovascular disease after 9.6 years in the Look AHEAD study.[49]Well-established medical therapies must be used with weight loss to achieve good control of

obesity-related coexisting conditions. Similarly, symptoms of some psychiatric disorders may improve with weight loss,[29],[50]but adjunctive psychiatric care is critical, particularly in persons with moderate or severe disorders. For example, adjunctive care has been shown to be of value for improving mental health and eating behaviors such as binge eating.[30]

How to asses a case of overweight and obesity

All patients with overweight or obesity should be clinically evaluated for weight-related complications because BMI alone is not sufficient to indicate the impact of excess adiposity on health status; therefore, the diagnostic evaluation of patients with obesity should include an anthropometric assessment of adiposity and a clinical assessment of weight-related complications. Patients with overweight or obesityshould be re-evaluated at intervals to monitor for any changes in adiposity andadiposity-related complications over time.

Patients with overweight or obesity and patients experiencing progressive weight gain should be screened for pre-diabetes and type 2 diabetes and evaluated for metabolic syndrome by assessing waist circumference, fasting glucose, A1C, blood pressure, and lipid panel, including triglycerides and HDL-c.

Management:

Treatments should be aligned with the severity of overweight, associated coexisting chronic diseases, and functional limitations. Useful guidelines are available for evaluating an individual patient's health risks and treatment options.[34,35],[51]

The main treatment options with sufficient evidence-based support are lifestyle intervention, pharmacotherapy, and bariatric surgery.[11],[34,35,52]

a) Lifestyle therapy:

A structured lifestyle intervention program designed for weight loss (lifestyle therapy) and consisting of a healthy meal plan, physical activity, and behavioral interventions.And it should be available to patients who are being treated for overweightor obesity. Reducing total energy (caloric) intake should be the main component of any weight-loss intervention.Even though the macronutrient composition of meals has less impact onweight loss than adherence rates in most patients.in certain patient populations, modifying macronutrient composition may be

considered to optimize adherence,eating patterns, weight loss, metabolic profiles, risk factor reduction, and/or clinical outcomes.

b) Meal plan:

Meal plan should be reduced calorie.it should have 500-750kcal daily deficit. It should be individualized and based on personal and cultural preferences.Meal plan can be includes Mediterranean,DASH,low carbohydrate,low fat ,volumetric,high protein, vegetarian, very low calorie diet plan is an option for selected patients and required medical supervision.

c) Physical activity:

Aerobic physical activity training should be prescribed to patients with overweight or obesity as a component of lifestyle intervention; the initial prescription may require a progressive increase in the volume and intensity of exercise, and the ultimate goal should be a total of e”150 min/week of moderate exercise performed during 3 to 5 daily sessions per week. Resistance training should be prescribed to patients with overweight or obesity undergoing weight-loss therapy to help promote fat loss while preservingfat-free mass; the goal should be resistance training 2 to 3 times per week consisting of single-set exercises that use the major muscle groups.An increase in non-exercise and active leisure activity should beencouraged to reduce sedentary behavior in all patients with overweight orobesity.The prescription for physical activity should be individualized to includeactivities and exercise regimens within the capabilities and preferences of the patient, taking into account health-related and physical limitations. Involvement of an exercise physiologist or certified fitness professional inthe care plan should be considered to individualize the physical activityprescription and improve outcomes.

d) Behavior interventions

Lifestyle therapy in patients with overweight or obesity should include behavioral interventions that enhance adherence to prescriptions for a reduced caloriemeal plan and increased physical activity (behavioral interventions can include: self-monitoring of weight, food intake, and physical activity; clear and reasonable goal-setting; education pertaining to obesity, nutrition, and physical activity; face-to-face and group meetings; stimulus control; systematic approaches for problem solving; stress reduction; cognitive re-structuring [ie, cognitive behavioral therapy]; motivational interviewing; behavioral contracting; psychological counseling; and mobilization of social support structures.

The behavior intervention package is effectively executed by amultidisciplinary team that includes dietitians, nurses, educators, physical activitytrainers or coaches, and clinical psychologists. Psychologists and psychiatrists should participate in thetreatment of eating disorders, depression, anxiety, psychoses, and otherpsychological problems that can impair the effectiveness of lifestyle interventionprograms. Behavioral lifestyle intervention and support should be intensified if patientsdo not achieve a 2.5% weight loss in the first month of treatment, as early weightreduction is a key predictor of long-term weight-loss success.

A stepped-care behavior approach should teach skills for problem-solving and should evaluate outcomes. Behavioral lifestyle intervention should be tailored to a patient’s ethnic,cultural, socioeconomic, and educational background. Weight regain is common after a patient completes a lifestyle intervention program.[35] The most effective behavioral method for preventing weight regain is continued support on an every-other-week or monthly basis, whether in person or bytelephone.[35],69 Although long-term behavioral counseling is effective, it is not widely available. Moreover, when this approach fails to producethe additional weight loss that patients desire, it is challenging to persuade the patients to remain in counseling to maintain the smaller weight loss they have achieved.[35]

e) Pharmacotherapy

Pharmacotherapyis indicated as an adjunct to areduced-calorie diet and increased activity for long-term weight management.[11],[34],[58]Medications may be considered in adults who have a BMI of 30 or higher or a BMI of 27 to 29 with at least one weight-related coexisting condition[9].Pharmacotherapy and lifestyle intervention lead to additive weight loss and should be used together.Pharmacotherapy with lifestyle intervention may also be of benefit in facilitating the maintenanceof reduced weight.[11],[34],[58].Phentermine, the most widely prescribedweight-management medication in the United States, is a low-cost sympathomimetic amine that was approved by the Food and Drug Administration

(FDA) in 1959 for short-term use(d”3 months).[11] The availability of five newer FDAapproved medications for weight management, along with complexities surrounding the prescribing of phentermine, has led some professionalgroups to discourage long-term use of phentermine.[11],[34],[58]

For approval of a new weight-loss drug, the FDA requires trials of at least 1 year’s duration that show the safety of the drug and a mean differenceof 5% or more in weight loss between the medication group and the placebo group.

Alternatively, the proportion of drug-group participants who lose 5% or more of baseline weight must be at least 35% and approximately double the proportion in the placebo group.[58].The five medications approved for long-termweight management include three single drugs and two combination drugs.

Mechanism approved by the food and drugs administration for long term weight management[54,55,59,60,61]

Drug	Mechanism of action	Dose	Study duration	Mean weight Kg%	Side effects	Contraindication
Orlistat	Pancreatic and gastric lipase inhibitor.	120 mg (before meal) Three times daily	52wks	8.8	Oily spotting, flatus with discharge fecal urgency, oilyevaculation. increased defecation	Pregnancy chronic malabsorptionsyn drome, cholestasis
Lorcaserin	Selective 5HT receptor agonistPromotes satiety to reduce food intake.	10mg twice daily	52	5.8	Patient without diabetes:headache,nausea,dizziness, fatigue,drymouth,constipation. Pt with Diabetes: hypoglycaemia, backpain, fatigue	pregnancy
Liraglutide	GLP-1agonist	0.6 mg given subcutaneouly upto 3 mg	56	8.4	Nausea,vomiting,constipation,hypo glycaemia,diarrhea,headache,fatigu e,dizziness,abdominal pain	Pregnancy, personal and family history of medullary thyroid cancer.
Phenteramin e-topiramate	Norepinephrine-releasing agent (phentiramine) GABA receptor modulation (topiramate)	3.75/23mg upto 15/92 mg	56			
Naltrexone-bupropion	Opioid antagonist (naltrexone dopamine and norepinephrine reuptake intake (bupoprion)	1 tablet (8/90mg)daily for 1 wk. dose subsequently increased each week by 1 tablet per day until maintainace dose of 2 tablets twice a day at wk 4	56	6.2	Nausea, constipation headache, vomiting, dizziness, insomnia, dry month	Uncontrolled hypertension, seizure disorder, anorexia nervosa or builima drug or alcohol

In 1-year pivotal trials, total weight losses for the three monotherapies (orlistat, lorcaserin, and liraglutide), whose effects are mediated by differentmechanisms, ranged from 5.8 to 8.8 kg (5.8to 8.8% of initial body weight).[11,56,59,60] Placebo subtracted weight losses, determined from a metaanalysis,ranged from 2.6 to 5.3 kg.[53] The two combination medications (phentermine–topiramate and naltrexone–bupropion) include drugs that purportedly act additively or synergistically on neural weight-loss mechanisms.[54,55].In 1-year pivotal trials, total weight loss for these combination drugs ranged from 6.2 to 10.2 kg(6.4 to 9.8% of initial body weight); placebo subtracted weight loss was 8.8 kg for phentermine–topiramate and 5.0 kg for naltrexone–bupropion.[53],[54,55]

Weight loss achieved with pharmacotherapy is generally associated with improvements in risk factors and chronic diseases, as shown for glycosylated hemoglobin in patients with type 2 diabetes.

However, some drugs may increase the pulse rate60 or attenuate expected blood pressure reductions.[55]In addition, FDA-mandated postmarketing trialsof cardiovascular disease outcomes in patientstreated with these medications have yet to becompleted, except in the case of liraglutide.[56]

Terminating medication after 12 to 16 weeksin patients who do not lose at least 5% of weightincreases the likelihood of a clinically meaningfulbenefit in those who continue to receivetreatment.[34],[58] The benefit also may be increasedby aligning the prescribed weight-loss medicationwith treatment of coexisting medical orpsychiatric conditions.[11],[34]For a number of reasons, physicians do notuse weight-loss medications to the extent thatone might expect, given the scale of the obesityproblem.[58] First, patients are often disappointedby moderate weight loss. Dissatisfaction with theresults, coupled with requirements to pay a substantialportion of costs, may lead to short-termrather than long-term use. Also, some practitionersappear to have lingering concerns about medicationsafety and may be awaiting the outcome ofFDA-mandated cardiovascular disease trials.

Finally,weight regain is common after termination ofdrug treatment [58] and is discouraging to patientsand practitioners. Long-term use of weight-loss medications, as approved by the FDA, may benecessary for long-term weight management,just as medications for hypertension, dyslipidemia and type 2 diabetes must be administered for the long term.

f) Bariatric Surgery

Between 2000 and 2010, the prevalence of class III obesity (BMI, e"40) increased by 70 percent[53] . Since high morbidity and mortality rates are associated with class III obesity and with a BMI of 35 to 39 in the presence of a coexisting condition, the use

of surgical weight-loss procedures has escalated. Although more effective than lifestyle and pharmacologic interventions, these procedures are associated with greater risks.[34,35],[52],[57]In the United States, three main types of bariatric surgery are currently performed; a fourth procedure, biliopancreatic diversion, is performed in no more than 2% of cases.[52],[57] Laparoscopic adjustable gastric banding, the least invasive and safest procedure.

Barriers to Treatment

Only a small fraction of patients for whom these three classes of treatments are indicated actually receive them. Barriers to care include slow recognition among health care providers that obesity requires long-term management, inadequatephysician training in nutrition and obesity, limited reimbursement for the full range of treatments, lack of effective and accessible lifestyle programs that can be administered locally or remotely at low cost to diverse populations, and limited referral of patients with severe obesity to experienced surgeons, even though bariatric surgery is a level A health-improving treatment option (i.e.with improvement based on data from multiple randomized trials or meta-analyses).[35] The hope is that a growing national, multidisciplinary network of medical professionals who have been trained and certified in the treatment of obesity will overcome some of these impediments to effective patient care.

Conclusion

Creating the conditions for healthy living in our modern environment, including prevention of obesity, is one of the great challenges for humankind.Much more effort must be devoted to both the prevention and treatment of obesity as part of the global campaign to rein in the chronic disease epidemic.

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