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the SQUARE Healthcare bulletin

- Acute Cholangitis
- Coping With Cancer
- Childhood Growth Retardation

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Contents

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Editorial

Dear Doctor:

Welcome to this edition of "the *SQUARE*" healthcare bulletin!

In this issue we have published a special write-up on “Acute Cholangitis” which is a life-threatening systemic condition that results from a biliary tree infection and obstruction. We have a special feature on "Coping With Cancer" which can be a challenging part for managing cancer patients. We have also focused on "Childhood Growth Retardation", which is very vast to describe but we tried our best to accommodate the essentials.

Besides, we have included "Glimpse of MSD Activities" and the regular section “Test Yourself” is here as well!

We believe you will enjoy reading this publication!

On behalf of the "*SQUARE* family", we wish you and your family a very joyful, healthy and peaceful life

Thank you!

Omar Akramur Rab

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Acute Cholangitis

Acute cholangitis is a bacterial infection superimposed on an obstruction of the biliary tree most commonly from a gallstone, but it may be associated with neoplasm or stricture. The classic triad of findings is right upper quadrant (RUQ) pain, fever, and jaundice. A pentad may also be seen, in which mental status changes and sepsis are added to the triad. A spectrum of cholangitis exists, ranging from mild symptoms to fulminant overwhelming sepsis. Thus, therapeutic options for patient management include broad-spectrum antibiotics and potentially, emergency decompression of the biliary tree.

Pathophysiology

The main factors in the pathogenesis of acute cholangitis are biliary tract obstruction, elevated intraluminal pressure and infection of bile. A biliary system that is colonized by bacteria but is unobstructed, typically does not result in cholangitis. It is believed that biliary obstruction diminishes host antibacterial defenses, causes immune dysfunction, and subsequently increases small bowel bacterial colonization. Although the exact mechanism is unclear, it is believed that bacteria gain access to the biliary tree by retrograde ascent from the duodenum or from portal venous blood.

As a result, infection ascends into the hepatic ducts, causing serious infection. Increased biliary pressure pushes the infection into the biliary canaliculi, hepatic veins, and perihepatic lymphatics, leading to bacteremia (25-40%). The infection can be suppurative in the biliary tract. The bile is normally sterile. In the presence of gallbladder or common duct stones (CBD), however, the incidence of bactibilia increases.

The most common organisms isolated in bile are *Escherichia coli* (27%), *Klebsiella* species (16%), *Enterococcus* species (15%), *Streptococcus* species (8%), *Enterobacter* species (7%) and *Pseudomonas aeruginosa* (7%). Organisms isolated from blood cultures are similar to those found in the bile. The most common pathogens isolated in blood cultures are *E coli* (59%), *Klebsiella* species (16%), *Pseudomonas aeruginosa* (5%), and *Enterococcus* species (4%). In addition, polymicrobial infection is commonly found in bile cultures (30-87%) and less frequent in blood cultures (6-16%) .

Causes

Both biliary obstruction and bacterial colonization of the biliary tree are the necessary elements for the development of acute cholangitis. Obstruction alone without microbes in bile is insufficient to cause clinical cholangitis. Conversely, infection is not produced by colonized bile without obstruction.

❏ *Bacteria*

The normal biliary tree does not contain bacteria. However, when stones or other obstructive lesions exist, bacteria can frequently be cultured from the bile. Study reported that 43% of bile samples collected prior to or during biliary surgery yielded predominantly gram-negative rods. Positive bile cultures are more frequently encountered in patients with choledocholithiasis (75%-90%) than in those with malignant obstructive lesions (25%-50%).

Bacteriologic studies in acute cholangitis showed mainly enteric organisms, such as *Escherichia coli, Klebsiella* species, other Gram-negative rods, *Streptococcus faecalis* and mixed growths. The presence of anaerobes varies widely, but they are almost always found together with aerobes. The exact manner in which organisms gain access to the bile is not known. Three routes are theoretically possible: hematogenous, lymphatic; and direct ascending from the duodenum. Hematogenous spread via the portal vein has been shown to be the most important source of bacteria for recurrent pyogenic cholangitis.

The same route may be an important mechanism for other causes of acute cholangitis, while lymphatic spread is less likely. In the presence of an intact sphincter, direct ascending infection is unlikely. On the other hand, contamination by enteric organisms readily occurs following endoscopic or radiological intervention. Furthermore, free bacterial reflux into the biliary tree occurs when the normal sphincter function is disrupted by endoscopic sphincterotomy, surgical excision or stent placement.

❏ *Obstruction*

In acute cholangitis, obstruction to bile flow causes a significant increase in bile duct pressure, which, in turn, leads to bacterial reflux into the bloodstream. The most common cause of biliary obstruction in

acute cholangitis is choledocholithiasis; however, recently, malignant obstruction has been seen with increasing frequency. This change in etiology has been attributed to the growing employment of non-operative treatment of biliary malignancies by endoscopic or transhepatic means. In a group of 323 patients with proven biliary obstruction, a study noted that the risk of acute cholangitis after endoscopic retrograde cholangiopancreatography (ERCP) was significantly higher in patients with malignant stricture. A similar finding was noted by another study and these authors attributed this finding to the problem of incomplete drainage. In a multivariate analysis of risk factors for acute cholangitis, a study found that cholangitis after percutaneous transhepatic cholangiography was one of the seven independent factors that predicted mortality.

Sign Symptoms

There are two components in the clinicai manifestations of acute cholangitis: local and systemic. The local symptoms are abdominal pain and jaundice. Systemic symptoms include fever, shock, confusion and multiple organ failure. Although the triad of jaundice, fever and right upper abdominal pain was described as the classical presentation by Charcot in 1877, it is seen in only 22% - 70% of patients and the clinical presentation is highly variable. At one end of the spectrum, patients may be mildly ill with only minimal abdominal pain and fever, whereas at the other end patients may present with shock and mental confusion together with Charcot's triad (Reynolds pentad). A study found no significant difference in the clinical manifestations between suppurative and non-suppurative cholangitis.

Laboratory Tests

Blood tests including white blood cell count, platelet count, C-reactive protein (CRP), albumin, alkaline phosphatase (ALP), gamma glutamyl transferase (GGT), aspartate aminotransferase (AST), alanine aminotransferase (ALT), bilirubin, blood urea nitrogen (BUN), creatinine, prothrombin time (PT) and PT-international normalized ratio (INR) are carried out for the purpose of diagnosis and severity grading, and blood gas analysis should also be performed (CPG). If a high fever is present, blood culture should preferably be performed at this point.

In terms of diagnostic imaging, abdominal ultrasound and computed tomography (CT) are useful for the diagnosis of acute biliary infection and at least one of these should be performed. Abdominal ultrasound in particular is minimally invasive, widely used, simple, and cheap, and should therefore be performed first in patients with suspected biliary infection, despite disadvantages including the fact that the results are easily affected by the operator's skill and the patient's condition.

Inflammation in acute cholangitis is difficult to assess on diagnostic imaging, but it is possible to evaluate dilatation of the bile duct or bile congestion due to occlusion/stenosis of the bile duct or biliary calculus and its cause. The distinctive signs of acute cholecystitis on diagnostic imaging include enlargement of the gallbladder, gallbladder wall thickening, gallbladder calculi, fluid retention around the gallbladder, abscess around the gallbladder and sludge debris in the gallbladder and the sonographic Murphy's sign (pain when the probe presses on the gallbladder) on abdominal ultrasound.

❑ *Role of ERCP in cholangitis*

ERCP is the gold standard for diagnosis of cholangitis. ERCP may also be applied as a reference method for evaluating other imaging procedures, such as MRCP. ERCP can be effectively exploited for diagnosis of cholangiocarcinoma in Primary Sclerosing Cholangitis (PSC), with specificity and sensitivity of 97% and 65%, respectively. Furthermore, ERCP delivers a high (98.8%) success rate. By the use of ERCP, complete assessment of a ductal tree may be accomplished, showing the presence of obstructive lesions and stenosis. Instead of a diagnostic method, ERCP may also be performed as a therapeutic procedure for biliary drainage in cholangitis. The role of biliary drainage procedures is of critical importance in the management of cholangitis. This approach provides a therapeutic alternative for patients who may not tolerate surgical drainage interventions. ERCP guided implantation of a biliary endoprosthesis or stent represents the gold standard therapeutic for biliary stricture.

This method is an effective therapeutic modality that can be tolerated even by elderly patients. Therapeutic ERCP may be indicated when patients are in

shock, show signs of nervous system involvement or show coagulation defects. Overall, other drainage procedures may be considered in cases in which ERCP is not possible, or under conditions for which ERCP is not available. Performing ERCP may not be feasible when there is pyloric or duodenal stenosis.

ERCP may also fail if the catheter cannot be inserted properly or in patients with prior operations on the gastrointestinal tract. It is suggested that the biliary drainage procedure be performed with 24 hours of the cholangitis diagnosis. Delay in performance of ERCP has been shown to increase the rate of recurrent cholangitis by 37%. In accordance, ERCP is recommended to be performed within 24 hours of admission for patients with Acute Cholangitis, as delaying this procedure can prolong hospital stay for these patients. Nevertheless, no significant differences were reported in mortality rate or hospital stay among patients with cholangitis who had undergone ERCP during 24, 48 or 72 hours after admission for the procedure. Timing of ERCP can be influenced by some factors, such as resuscitation period and hemostatic disease. ERCP is associated with higher rates of complications respective to other endoscopic procedures. These complications include pancreatitis, bleeding, trauma and cardiopulmonary problems.

ERCP may lead to complications such as pancreatitis in 1.2-4% and cholangitis in 2-2.5% of cases. Pancreatitis, perforation and bleeding, as well as cholangitis comprise the most common complications of ERCP in PSC patients. The overall rate of ERCP compli-cations requiring hospital stay in PSC patients has been reported as 10%. Other ERCP related complications include increased common bile duct (CBD) diameter, biliary dilatation, biliary stent insertion and cholangiocarcinoma.

Diagnostic Criteria

Table 1: TG18/TG13 (Tokyo Guideline) diagnostic criteria for acute cholangitis

A. Systemic inflammation

A-1. Fever and/or shaking chills

A-2. Laboratory data: evidence of inflammatory response

B. Cholestasis

B-1. Jaundice

B-2. Laboratory data: abnormal liver function tests

C. Imaging

C-1. Biliary dilatation

C-2. Evidence of the etiology on imaging (stricture, stone, stent, etc)

Suspected diagnosis: one item in A + one item in either B or C

Definite diagnosis: one item in A, one item in B and one item in C

A-2: Abnormal white blood cell counts, increase of serum C-reactive protein levels, and other changes indicating inflammation

B-2: Increased serum ALP, r-GTP (GGT), AST and ALT levels thresholds

A-1 Fever		BT >38°C
A-2 Evidence of inflammatory response	WBC (91,000/ll)	<4 or >10
	CRP (mg/dl)	≥1
B-1 Jaundice		T-Bil ≥2 (mg/dl)
B-2 Abnormal liver function tests	ALP (IU)	>1.5 9 STD
	cGTP (IU)	>1.5 9 STD
	AST (IU)	>1.5 9 STD
	ALT (IU)	>1.5 9 STD

ALP alkaline phosphatase, ALT alanine aminotransferase, AST aspartate aminotransferase, rGTP (GGT) r-glutamyltransferase, STD upper limit of normal value

Initial Treatment

Once a definitive diagnosis of acute cholangitis has been reached, initial treatment including the infusion of sufficient fluids and antibiotic and analgesic administration is started, with careful monitoring of blood pressure, heart rate, and urine volume. It goes without saying that if the patient is in a state of shock, initial treatment should be started without waiting for a definitive diagnosis. Although there is no high quality evidence for the merits and demerits of fasting in acute cholangitis in principle patients should be fasted to enable immediate emergency drainage. Despite the concern that analgesic administration may mask physical signs and cause a mistaken diagnosis, a randomized controlled trial (RCT) comparing intravenous morphine hydrochloride and an intravenous placebo for patients examined in the emergency room complaining of abdominal pain found no difference between them in the rate of diagnosis and analgesics should therefore be administered proactively at an early stage. Opioid analgesics such as morphine hydrochloride and other similar types of drug (such as non-opioid analgesics and pentazocine) cause the sphincter of Oddi to contract, which may elevate biliary pressure, and must therefore be administered with caution.

In the case of serious deterioration, such as the appearance of shock (hypotension), disturbance of consciousness, acute dyspnea, acute renal dysfunction, hepatic dysfunction or disseminated intravascular coagulation (DIC), emergency biliary drainage should be considered alongside appropriate organ support and respiratory/circulatory management (such as artificial ventilation, tracheal intubation, and the use of hypertensive agents).

❑ *Antibiotic for Cholangitis*

New light has been shedding on the role of microbial components in development of various forms of cholangitis. Due to the high rate of positive microbial cultures from the bile ducts of cholangitis patients, it has been suggested to obtain a microbial profile before performing drainage methods. The most common bacterial infections in cholangitis include the *Escherichia coli, Klebsiella* spp., *pesudomonal* species, *Enterobacter* spp., *Acinetobacter* spp. of Gram-negative bacteria and *enterococcus, streptococcus* and *staphylococcus* Gram-positive bacteria. Selection of antibiotics may be influenced by multiple factors, such as prior exposure of patients with hospital acquired infections, as well as the severity of the disease. For the best practice, administrated antibiotics for cholangitis should be those with broad range antimicrobial activities and which are capable of passing into the bile duct, such as third generation cephalosporins, ureidopenicillins, carbapenems and fluoroquinolones. The most effective antibiotics for cholangitis patients have been noted as imipenem-cilastatin, meropenem, amikacin, cefepime, ceftriaxone, gentamicin, piperacillin-tazobactam and levofloxacin.

Table 2 : TG18/TG13 severity assessment criteria for acute cholangitis

Grade III (severe) acute cholangitis -

"Grade III" acute cholangitis is defined as acute cholangitis that is associated with the onset of dysfunction at least in any one of the following organs/systems:

1. Cardiovascular dysfunction: hypotension requiring dopamine ≥5 lg/kg per min or any dose of norepinephrine
2. Neurological dysfunction: disturbance of consciousness
3. Respiratory dysfunction: PaO_2/FiO_2 ratio <300
4. Renal dysfunction: oliguria, serum creatinine >2.0 mg/dl
5. Hepatic dysfunction: PT-INR >1.5
6. Hematological dysfunction: platelet count <100,000/mm^3

Grade II (moderate) acute cholangitis-

"Grade II" acute cholangitis is associated with any two of the following conditions:

1. Abnormal WBC count (>12,000/mm^3, <4,000/mm^3)
2. High fever (≥39˚C)
3. Age (≥75 years)
4. Hyperbilirubinemia (total bilirubin ≥5 mg/dl)
5. Hypoalbuminemia (<STD 9 0.7)

Grade I (mild) acute cholangitis

"Grade I" acute cholangitis does not meet the criteria of "Grade III (severe)" or "Grade II (moderate)" acute cholangitis at initial diagnosis .

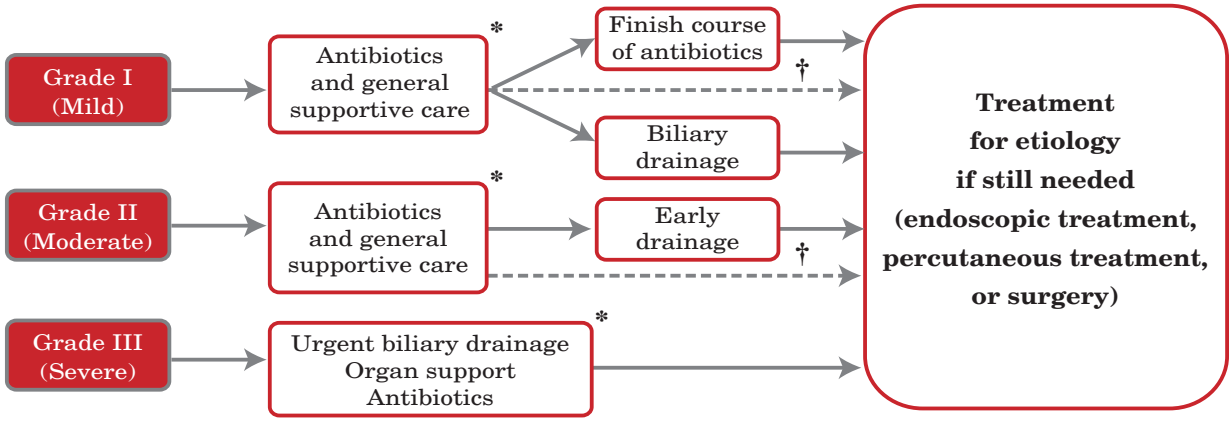
STD lower limit of normal value

After severity has been assessed and the patient's general status has been evaluated, a treatment strategy should be decided on the basis of the flowchart for the management of acute cholangitis and treatment should immediately be provided. With the exception of part of the management of moderate cholangitis, the TG18 flowchart for the management of acute cholangitis is little changed from TG13. Acute cholangitis should be managed in accordance with its severity. Biliary drainage and antibiotics are the two key pillars of the treatment of acute cholangitis. In some cases of acute cholangitis, acute cholecystitis may also be present; in this event the treatment strategy should be decided in consideration of the severity of both and the patient's general status. If blood culture has not been performed as part of the initial response, it should be carried out before antibiotic administration. If biliary drainage is performed, bile samples must always be sent for culture.

the prognosis is good. A study proposed that a risk prediction model for in-hospital mortality in patients with acute cholangitis using 22 predictors and the Tokyo criteria to stratify them into high and low risk mortality groups and then into different management groups. In univariate analysis, organ failure had the strongest association with mortality with mental confusion, hypotension requiring catecholamines, Quick value below 50%, serum creatinine level above 2 mg/dL and a platelet count below 100,000/mm^3 as prognostic factors contributing to organ failure.

Patients classified as low risk for mortality would be considered for elective biliary drainage, whereas those considered to be at high risk for mortality would undergo urgent biliary drainage. Another study indicate that leukocytosis greater than 20,000 cells/ L and total bilirubin level above 10 mg/dL, but not timing of ERCP, are independent prognostic factors for adverse outcomes.

Flowchart for the Management of Acute Cholangitis :



*TG18 flowchart for the management of acute cholangitis. *Blood culture should be taken into consideration before antibiotics are started. Bile samples should be taken during biliary drainage and cultured. †Principles of treatment for acute cholangitis consist of antimicrobial administration, biliary drainage and treatment of the etiology. For patients with mild or moderate choledocholithiasis, if possible the etiology should be treated at the same time as biliary drainage is performed*

Prognosis

The prognosis depends on several factors, including the following: 1. Early recognition and treatment of cholangitis, 2. Response to therapy, 3. Underlying medical conditions of the patient. Mortality rate ranges from 5-10%, with a higher mortality rate in patients who require emergency decompression or surgery. Early endoscopic retrograde cholangiopan-creatography (ERCP) for acute cholangitis within 24 hours appears to be associated with a lower 30-day mortality. In patients responding to antibiotic therapy,

In a separate study, did not find adverse outcomes from weekend admission and weekend endoscopic retrograde cholangiography (ERC) on patients with acute cholangitis admitted to a tertiary care center.

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Optimal psychosocial care of people with cancer is best provided when all those involved have a detailed understanding of the challenges faced by a person with cancer, including potential reactions to these problems. A person with cancer experiences a range of emotional, psychological, physical and practical challenges. These may include: coping with the shock of their diagnosis and fears over their health and future, physical symptoms and adverse effects of treatment such as nausea, fatigue and physical changes in body appearance and functioning, financial costs, altered occupational, employment and financial status; and psychological difficulties ranging from concerns about body image and sexuality to severe disorders such as anxiety and or depression.

Some will also have to face progressive illness and approaching death. Some challenges will be experienced by all patients, regardless of cancer site. Other issues may be cancer site-specific or may be relevant to only a few cancers. The level of distress experienced may vary depending on the cancer site, prognosis and patient burden.

A key factor in the increase in the number of cancer cases and deaths is that the global population is growing and aging. In addition, there is a lack of access to information about prevention, early detection, and treatment in developing countries, and an inadequate medical and public health infrastructure. As a result, cancers are often diagnosed at a late stage, and people suffer needlessly from inadequate palliative care.

The emotional adjustment to the diagnosis and treatment of cancer is influenced by several factors. For example, family, friends and religious beliefs have been reported to be important in providing hope, but clinical uncertainty has been found to reduce hope significantly. High levels of social support clearly assist in coping. The ability to identify with others for whom things are going well and to contrast oneself with those for whom things are not going well has been identified by patients as a useful strategy for coping.

A review of studies examining age and adjustment to cancer indicates that younger patients may be particularly vulnerable to emotional distress. This may be due to concerns about the impact of cancer on their partner and children, including practical issues such as income and childcare, the untimely nature of the diagnosis, and a sense of isolation. Older patients may face a different set of issues; difficulties due to co-morbid conditions such as heart disease, arthritis or waning mental capacity may increase the impact of cancer and affect ability to cope.

Research into any links between emotional adjustment and cancer outcome has focused on breast cancer and has yielded mixed results. One prospective study demonstrated increased risk of death on relapse in those with high levels of helplessness and hopelessness. Another study has failed to find a clear link between coping strategies and disease outcome. To date there has been no clear link established between stressful life events and either the development or progression of breast cancer. In general, adopting an active, problem-solving style in which emotions are openly expressed appears to make coping easier.

In contrast, avoiding discussing emotional and other issues has been associated with more distress. The capacity to be flexible appears important, as those with a strong desire for control are more likely to experience emotional distress. Gender also appears to influence the way people react to cancer.

There are gender differences in mortality for some cancers and other diseases. It has been suggested that these differences may relate to social attitudes of men to health and illness, including the need to be strong in adversity. Differences have also been documented in men's response to illness, including lower utilization of health care services.

Incidence Worldwide:

New cases of worldwide cancer, 2012

Deaths from worldwide cancer, 2015

Smoking

According to WHO

- Cancer is the second leading cause of death globally and was responsible for 8.8 million deaths in 2015. Globally, nearly 1 in 6 deaths is due to cancer.
- Approximately 70% of deaths from cancer occur in low- and middle-income countries.

Source: Cancer Incidence & Mortality Worldwide: IARC (International Agency for Research on Cancer) Cancer Base No.11

- Around one third of deaths from cancer are due to the 5 leading behavioral and dietary risks: high body mass index, low fruit and vegetable intake, lack of physical activity, tobacco use and alcohol use.
- Tobacco use is the most important risk factor for cancer and is responsible for approximately 22% of cancer deaths.
- Cancer causing infections, such as hepatitis and human papilloma virus (HPV), are responsible for up to 25% of cancer cases in low- and middle-income countries.
- Late-stage presentation and inaccessible diagnosis and treatment are common. In 2017, only 26% of low-income countries reported having pathology services generally available in the public sector. More than 90% of high-income countries reported treatment services are available compared to less than 30% of low-income countries.
- The economic impact of cancer is significant and is increasing. The total annual economic cost of cancer in 2010 was estimated at approximately US$ 1.16 trillion.
- Only 1 in 5 low- and middle-income countries have the necessary data to drive cancer policy.

Summary of the major issues by cancer type

Issue	Cancer type
Emotional and social issues	All cancers
Psychological issues	
Body Image	All cancers, particularly breast, colorectal, gynecological, head and neck, laryngeal, prostate, skin
Sexuality	All cancers, particularly breast, colorectal, gynecological, head and neck, laryngeal, prostate, skin
Interpersonal problems	All cancers
New relationships post diagnosis	All cancers
Stress and adjustment reactions/Severe emotional distress	All cancers
Anxiety, depression, PTSD	All cancers

Issue	Cancer type
Physical issues	All advanced cancer
Nausea and vomiting	All cancers, in direct relation to the disease or treatment. Also in relation to other problems such as bowel obstructions or liver or cerebral metastases
Pain	All cancers
Fatigue	All cancers
Fertility	All cancers, directly in relation to surgery, or where treatment includes radiation or chemotherapy
Lymphoedema	All cancers where disease or treatment involves lymph nodes
Disfigurement	Breast, head and neck, skin, colorectal, gynecological especially vulvar
Odour	Gynecological, colorectal, skin, head and neck
Incontinence	Especially increased risk for prostate, gynaecological, colorectal, all advanced cancer
Bowel dysfunction	Especially increased risk for colorectal, prostate, ovarian, all advanced cancer
Cognitive problems	Brain, possibly all cancers
Communication difficulties	Head and neck, laryngeal, brain
Malnutrition due to factors such as: Lack of appetite, oral symptoms or swallowing difficulties	All cancers
Respiratory symptoms	Lung, laryngeal, head and neck, Hodgkin's Disease, any metastatic disease involving lungs and pleura
Practical issues Costs - diagnosis and treatment - supportive treatments/therapies - prostheses / aids	 All cancers All cancers Breast, colorectal, laryngeal, all cancers where the disease/treatment result in removal or loss of body parts, problems with incontinence, erectile dysfunction, speech
Reconstructive surgery	Breast, skin, head and neck, colorectal, gynecological - vulva, recurrent disease
Lymphoedema	All cancers where disease or treatment involves lymph nodes
Travel and accommodation costs	All cancers
Other support needs, eg child care etc	All cancers
Loss of income	All cancers
Difficulties with business dealings	All cancers
Legal issues related to advanced disease	All cancers
Towards-the-end-of-life issues	All cancers
Survival issues	All cancers

In developed countries, healthcare services are delivered through both the public and private sectors, in urban and rural remote locations, and involve State and Federal funding. Patients move between a variety of treatment settings and service providers during the phases of diagnosis, treatment and follow-up, which may be provided over a considerable period of time. Attention to continuity of care for these patients may require active interventions.

Identification of a coordinator of care

The identification of a coordinator of care, often a General Physician (GP), can be useful in ensuring continuity of care. GPs often have knowledge of a patient's background, such as family and social history, usual responses to illness, and medical history, as well as awareness of local community agencies which would be helpful.

The GP may also look after the family throughout the patient's illness and follow-up. In rural and remote areas in particular, the general practitioner may play a key role in ongoing care. It is important to note that patients who have been treated for cancer may have co-morbid conditions (medical or mental) and a GP is likely to be in the best position to coordinate overall care and facilitate appropriate specialist referral.

The coordinator of care could also be the treating surgeon or another member of the treatment team, and should be selected by the patient in consultation with the treatment team. It is important that the patient identifies who they wish to be their primary care professional. The coordinator of care needs to be informed of all consultations, treatment plans and treatment outcomes.

Patients in public hospitals are more likely than patients in private hospitals to report that they had seen too many healthcare professionals during their treatment and would prefer one person identified as their contact point with the system and their care.

Multidisciplinary care

It is increasingly recognized that the development of a treatment plan by a multidisciplinary team improves outcomes for patients with cancer and most clinical practice guidelines include a recommendation that care be provided in a multidisciplinary manner.

Multidisciplinary teams may include a core set of disciplines such as surgery, medical oncology, pathology, radiology, radiation oncology, general practice and supportive care. The multidisciplinary team ideally has links to other disciplines that can provide advice and treatment when required. These might include genetic services, liaison psychiatry, physiotherapy, occupational therapy, social work or orthopedics. It is important that each individual therapist have appropriate skills in cancer management.

Effective multidisciplinary care requires excellent communication among team members, including discussion of individual patient issues at regularly scheduled dedicated case conferences. These meeting may be held in a variety of formats including face-to-face meetings or linking separate sites through the use of e-health technologies such as teleconferences or video conferencing. Multidisciplinary treatment planning meetings, in which all key disciplines are represented, are increasingly used to facilitate effective communication. In order to ensure that each patient's psychosocial issues are considered, multidisciplinary meetings should include a core team member who represents the psychosocial areas of care, such as an oncology nurse, social worker or a designated clinician.

Effective written communication is also fundamental to successful multidisciplinary care. Teams should develop protocols that include an outline of the information required by treating clinicians to ensure continuity of care. Special attention should be paid to ensuring that the GP receives adequate information, including relevant psychosocial issues.

Local protocols should include strategies to provide similar information about diagnosis and treatment to the patient. These might include the provision of copies of letters or pathology reports and/or specially developed written treatment and follow-up plans.

To ensuring continuity of care

- ❑ To develop a communications framework for the multidisciplinary team and train team members in communication skills

- ❏ To schedule regular dedicated case conferences
- ❏ To ask the patient who they would like to coordinate their care, eg, gp, specialist nurse, etc.
- ❏ To document designation of coordinator of care in medical notes and/or patient-held record
- ❏ The coordinator of care should inform specialists and members of the treatment team of any known psychosocial or medical risk factors that may influence treatment
- ❏ To notify the coordinator of care promptly after each visit to a specialist or when there are any changes in treatment. Options include a phone call, a fax, or a letter carried by the patient
- ❏ To notify the coordinator of care of any inter-specialist referrals. a phone call or fax message may be sufficient (or even preferable), rather than sending the patient back and forth
- ❏ To provide letters of referral and letters of reply with relevant information to members of the treatment team
- ❏ Forward all relevant health information to the coordinator of care; however, the patient should be encouraged to contact the appropriate member of the treatment team for clarification and further information
- ❏ To ensure patient is aware of ongoing collaboration and communication between multidisciplinary team about their treatment

Support towards the end of life

Maintaining quality of life and minimizing the physical and psychosocial impact of the cancer and its treatment should be a major focus of the management of people with cancer, as these have been shown to be significant, independent prognostic predictors of survival in clinical trials. This is especially important for patients living with advanced cancer. Health professionals need to be aware of the potential impact of the disease on quality of life for patients and their families, and set up monitoring strategies so that appropriate interventions can be implemented. Valid and reliable quality-of-life assessment is also important as it may influence decision-making about the type of treatments used. For most individuals living with advanced cancer, remaining at home is the preferred option. However, care can be provided in a range of clinical settings, and is not limited to the acute hospital setting.

In some cases, particularly the more complex ones, palliative care can be provided by specialist palliative care teams. A systematic review of the evidence for palliative care found that specialist palliative care services improve patient outcomes in relation to patient satisfaction, the proportion of patients being cared for in their place of choice, family satisfaction, control of pain, symptoms and family anxiety.

Supporting patients coping with physical issues

In people with advanced cancer, quality of life is impaired by symptoms, loss of function and curtailment of activities. As patients enter the phase of palliative care, physical symptoms require active treatment. If pain and other symptoms are not actively treated or controlled, psychological distress increases and physical and social functioning decreases.

In addition to medical management, cancer pain can be significantly improved by relaxation therapy, either alone or with guided imagery and music. Further, educational programs conducted by nurses and aimed at enhancing pain control result in better adherence to treatment and improved pain control.

Supporting patients coping with psychological issues

For patients and their families, emotional distress, anxiety and depression may increase as the disease increasingly impacts on daily life and they are confronted with their own, or their loved ones, mortality. Recognition of grief and the provision of psychological support and bereavement support are integral aspects of care. Education sessions can improve adjustment, knowledge, death awareness and increase positive self-concept. Psychological interventions are associated with improved outcomes in a number of domains of quality of life, including mood, self-esteem, coping, and sense of personal control, physical and functional adjustment.

Psychosocial interventions can be undertaken by members of the treatment team or by specialist providers of psychological care.

Providing psychosocial support to patients with advanced cancer requires a multidisciplinary approach, as patients pass through many different phases of the disease and require varied treatment from a range of specialists. In addition to medical specialists and nursing staff, the team may variously include liaison psychiatrists, social workers, clinical psychologists and physiotherapists. It is also important to consider the contribution of community based health professionals such as general practitioners, occupational therapists and speech therapists.

Supporting patients coping with social issues

A study examining the experience of patients with cancer in their final year of life found that one of the features associated with a 'good death' (i.e. from the patient's perspective) was the social life of the dying patient. As social life may become increasingly disrupted as the disease progresses it is important for clinicians to monitor the level of social support/interaction the patient has, desires and is capable of, and to offer advice and assistance. Where no support is available, information about available services, such as visiting programmes by church or community groups, may be beneficial.

Supporting patients with 'putting their affairs in order' and coping with existential and spiritual issues

Other factors reported to be important to the dying patient are the creation of open awareness, the adjustment to and personal preparation for, death, and the public preparation, such as arrangements relating to work and final farewells. Given the opportunity, health professionals should ask their patient about their expectations of dying and death.

As existential and spiritual issues have been shown to be important or gain importance, towards the end of life, health professionals have a role in providing the opportunity to discuss spiritual and existential issues and assessing the needs and support available to the patient and the family. Many patients will have their own spiritual advisor who should be consulted. Information about resources and available support sources should be provided to those in need.

Family support

Families play a major role in a patient's ability to cope with cancer. A study of patients with breast cancer found that open communication styles and expression of feelings generally facilitate adjustment. There is no evidence that being upset will worsen the prognosis, in fact, there is evidence from breast cancer studies that expression of feelings may improve adjustment. Therefore, in general it is appropriate to encourage patients to express feelings and concerns and to maintain open communication with their family and friends.

Supporting the family and caregivers

Families and carers may benefit from information about support services and groups that can provide practical assistance, support and counseling. Information about local services for families can be obtained from the Cancer Helpline and hospital social workers.

Anger is common in the offspring of patients with cancer and the ability of families to cope with this is further undermined if there are poorly defined roles and power structures within the family. Review articles and data from surveys also suggest that parents with cancer may fail to recognize the extent of distress and emotional needs of their children, as they are preoccupied with coping with treatments and disease burden. For these reasons, access to specialized support may be beneficial.

In addition, external services that offer specialized support have a benefit. A study of 292 family members of dying nursing home patients, half of whom had cancer, showed that the perceived quality of care for the emotional needs of carers increased from 64% to 90% after the introduction of a hospice.

Issues that arise for clinicians caring for patients and their families

Treating patients whose disease has progressed, or failed to respond to treatment poses a stress for health professionals. Responding to patients who are dying and their families, may engender considerable distress. In this setting it is helpful for health professionals to draw on the expertise of members of a multidisciplinary team, particularly in dealing with complex clinical problems. The capacity to reflect on professional and personal priorities is important, as is the opportunity to discuss difficult issues with colleagues.

Enhancement of skills in communication and management may be further strategies to reduce stress.

These steps are recommended in conjunction with the general interactional skills for helping patients coping with cancer

Planning care

- ❏ To ask about the person understands of their disease status, including their current needs and priorities
- ❏ To discuss plan of future management and monitoring, including understanding of short and medium term outcome goals
- ❏ To check with the patient and their family members about the amount and type of information they desire
- ❏ To keep the person, their partner, children, and significant others continually informed about issues of most importance to them, such as the likely course of the disease, symptom management and service availability, tailoring this to the wishes of the individuals

Physical issues

- ❏ To introduce the notion of active treatment of symptoms and the importance of its role in ongoing care
- ❏ To discuss and clarify the current targets of symptom management and actively enquire about the person's symptoms, particularly pain and fatigue
- ❏ To provide the person and their family with information about specific measures available for symptom relief
- ❏ To provide the person and their family with information about practical support services such as volunteers, Meals on Wheels, home help, community nurses, palliative care domiciliary services, etc.

Psychological issues

- ❏ Have to actively encourage the person to discuss how they and their family are coping with the disease and how others' reaction to the disease is impacting on the person's well-being
- ❏ To make specific arrangements for counselling/ support/information to be available for the person and their family

Social issues

- ❏ Have to actively encourage the person to discuss how their disease is impacting on their relationships and social life and whether their family is influencing their level of social interaction
- ❏ To provide information about counseling and support, including support groups
- ❏ To encourage open communication and expression of feelings and fears in relationships with family and friends
- ❏ To discuss issues related to dying and death and encourage the person to discuss these issues with family and friends
- ❏ To encourage early involvement with palliative care services to access their range of supportive personnel and therapies

Other issues

- ❏ To ask about practical care needs, including financial and legal issues
- ❏ To enquire about spiritual needs and offer referral for pastoral care, if desired
- ❏ To discuss availability for future advice and support

There are millions of adults and children in the world who are cancer survivors. Many say that they felt they had lots of support during their treatment, but once it ended it was hard to make a transition to a new way of life. It was like entering a whole new world where they had to adjust to new feelings, new problems, and different ways of looking at the world. Coping with cancer in different level will help millions of poor souls to overcome this trauma.

References

- ❏ World Health Organization (WHO)
- ❏ Cancer Research UK
- ❏ National Cancer Institute, NIH
- ❏ American Cancer Society

Childhood Growth Retardation

The quality of life of infants and young children, as opposed to mere survival, is becoming increasingly important. Most developing countries have experienced dramatic decreases in their infant and under-5 mortality rates over the last three decades. As greater numbers of children survive, it becomes critical to pay closer attention to children's ability to develop their full physical and mental potentials. This will in turn have important consequences in adult life.

Child growth is internationally recognized as the best global indicator of physical well-being in children because poor feeding practices in both quantity and quality and infections, or more often a combination of the two, are major factors that affect physical growth and mental development in children. Poor child growth is the consequence of a range of factors that are closely linked to the overall standard of living and whether a population can meet its basic needs, such as access to food, housing and health care. Child growth assessment thus not only serves as a means for evaluating the health and nutritional status of children but also provides an excellent measurement of the inequalities in health faced by populations. Based on this principle, internationally set health goals for this century will be assessed on the basis of improve-ments in the rates of underweight among children younger than 5 years .

There is strong evidence that poor physical growth is usually associated with deficient or delayed mental development and a number of studies have demonstrated a relationship between growth status and school performance and intellectual achievement.

Impaired growth is ultimately a response to limited nutrient availability or utilization at the cellular level. Although in the past most of the attention has been directed toward the negative consequences associated with inadequate protein-energy intake, there is increasing recognition of the important role that micronutrient deficiency plays in children's growth and development. At severe levels of proteinenergy deficiency, linear growth probably stops and body reserves are used as energy and protein sources to maintain vital functions. Nutritional deficiencies in turn are deeply rooted in poverty and deprivation. Poverty breeds under-nutrition, which in turn generates poverty in a vicious cycle that perpetuates across generations.

Epidemiology

❑ *Prevalence*

An analysis using data from the WHO Global Database on Low Birth Weight quantified the magnitude of IUGR in dif-ferent countries and regions of the world. It is estimated that about 13.7 million babies in developing countries are already malnourished at birth, representing 11% (ranging from 1.9% to 20.9%) of all newborns in these countries. This rate is considerably higher than that estimated for developed countries (approximately 2%). Overall, the incidence of IUGR-LBW is about six times higher in developing than in developed countries. The estimates of IUGR-LBW, however, greatly underestimate the magnitude of fetal growth retardation; the actual incidence of IUGR could be considerably higher. For example, if the rates of infants below the tenth percentile of the birth weight for gestational age reference curve are considered, 23.8% or approximately 30 million newborns per year would be affected. There are nevertheless some healthy infants with birth weights below the tenth percentile, who represent the lower tail of a fetal growth distribution. The risk of being born malnourished is highest in Asia, followed by Africa. Taking into consideration the number of total live births in each geo-graphical region, nearly 75% of all affected newborns are born in Asia (mainly South-central Asia), 20% in Africa, and about 5% in Latin America.

These estimates confirm that IUGR is a major public health problem worldwide. In many countries, the high rates of impaired fetal growth exceed the recommended levels for triggering public health action. The overall reduction in the prevalence of underweight is consistent with the increasing rates in childhood overweight observed in many developing countries. A global analysis in 1995 showed a rising trend in childhood over-weight in 16 of 38 developing countries with more than one national survey.

An analysis forecasted trends of underweight to identify geographical regions unlikely to achieve the Millennium Development Goal of a 50% decrease in the 1990 prevalence by 2015.

❑ *Mortality/Morbidity*

Short stature has been thought to have far-reaching effects on psychological well-being, including poor academic achievement (despite normal intelligence, healthy family dynamics and high socioeconomic status) and behavioral problems (eg, anxiety, attention seeking actions, poor social skills). Morbidity related to the underlying cause of the growth failure may also be observed.

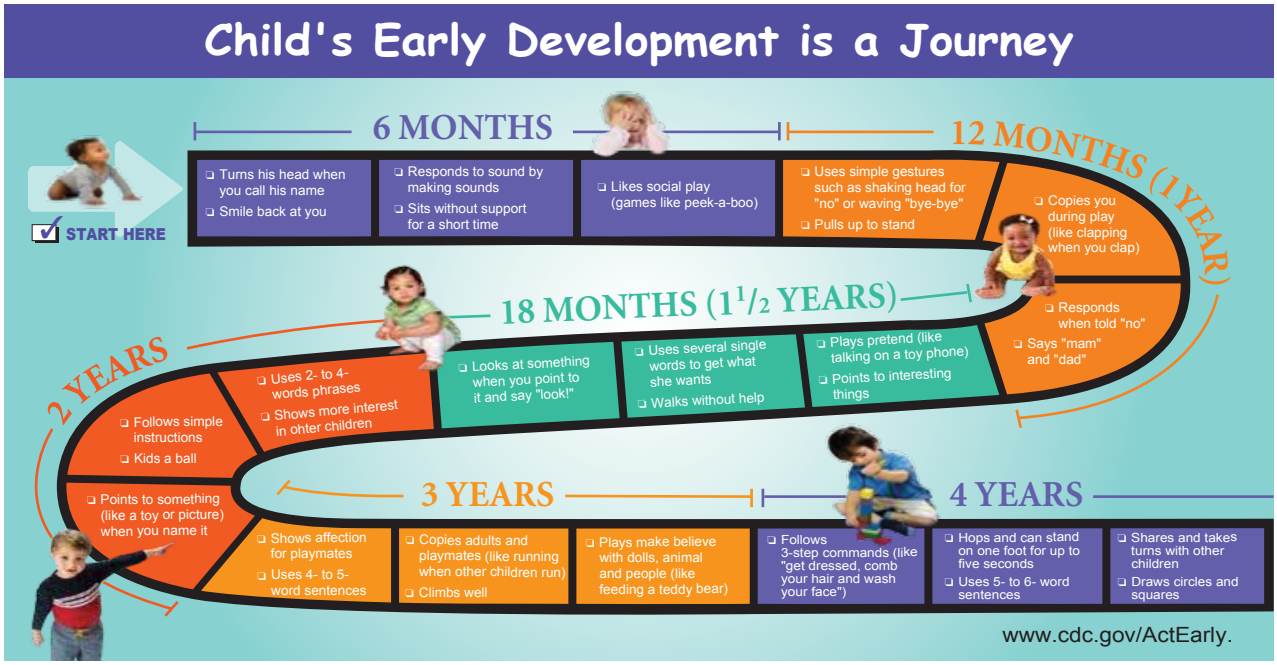
dren treated with growth hormone, white children appear to be over-represented, compared with children of Asian or African descent. This observation is thought to be probably due to referral bias.

❑ *Sex*

The sex distribution of children treated with growth hormone is about 3 boys for every girl. Recent work in this area suggests that this is mostly due to a referral bias, either from parents themselves or from the referring physician.

Pathophysiology

The most rapid phase of human growth is intrauterine. Following birth, a gradual decline in growth rate occurs over the first several years of life. The average length of an infant at birth is about 20 inches, the length at age 1 year is approximately 30 inches, the length at age 2 years is approximately 35 inches and the length at age 3 years is approximately 38 inches. After age 3 years, linear growth proceeds at the relatively constant rate of 2 inches per year (5 cm/y) until puberty. Normal growth is the result of the proper interaction of genetic, nutritional, metabolic, and endocrine factors. To a large extent, growth potential is determined by polygenic inheritance, which is reflected in the heights of parents and relatives. Secretion of growth hormone (GH) by the pituitary is stimulated by growth hormone-releasing



Some studies involving children who have not been seen in a clinic that treats short stature (and therefore, may represent a different patient population) have challenged the notion that short stature has psychological implications. At the present time, this issue is not completely resolved. Mortality rates in children with growth failure relate to the underlying cause of the growth failure. Mortality is not related to growth failure itself; rather, it is related only to the cause of the growth failure.

❑ *Race*

There is no known racial predilection for growth failure; however, in large databases following chil-

hormone (GHRH) from the hypothalamus. GHRH also stimulates somatotroph proliferation. Another signal, which is stimulated by certain growth hormone-releasing peptides (GHRPs), may be present; the receptor for the GHRPs has been identified, and ghrelin, the natural ligand for these receptors, has been identified. The GHRH receptor is a cell surface-associated seven membrane-spanning domain protein linked to a G protein (Gs).

It stimulates intracellular cAMP production after ligand-induced activation. Ghrelin (from the word ghre, a root word in Proto-Indo-European languages meaning grow), is unique in that it is a small poly-peptide modified at the third amino acid (serine) by esterification of n-octanoic acid. Ghrelin is a gast-rointestinal peptide (synthesized in the stomach) which specifically induces GH secretion. The ghrelin receptor is expressed on the anterior pituitary. So-matostatin secreted by the hypothalamus inhibits growth hormone secretion. When growth hormone pulses are secreted into the systemic circulation, insulin-like growth factor (IGF)-1 is released, either locally or at the site of the growing bone. Growth hormone circulates bound to a specific binding protein (GHBP), which is the extracellular portion of the growth hormone receptor. IGF-1 circulates bound to one of several binding proteins (IGFBPs). The IGFBP that most depends on growth hor-mone is IGFBP-3.

Child Growth: Concept, Indicators & Interpreta-tion

Assessing childhood growth remains a mainstay of pediatric care in all settings, that is, in the most advanced health care centers and those faced with severe resource constraints. It is the most wide-spread approach for assessing body size, weight, composition and proportions. Growth failure is a cumulative process that can begin in utero. An expert committee from the World Health Organi-zation (WHO) recommended the tenth percentile of a birth-weight-for-gestational-age, sex-specific, single/twins risk curve for the classification of small for gestational age. In children, the three most common-ly used indicators to assess growth status are weight for-age, length/height-for-age, weight-for-length/height. Weight-for-age is the most commonly applied and for more than half of the world's countries, the sole anthropometric indicator used. Although it is the easiest indicator to use when children's ages are known, weight-for-age lacks the biological specificity necessary to separate weight-from length/height-related deficits or excesses in growth. Conversely, length/height-for-age and weight-for-length/height permit the distinction of stunted, wasted and overweight children and allow the appropriate targeting of interventions.

❏ *Low weight-for-age*

Weight-for-age reflects body mass relative to chronological age. It is influenced by both the child's height (height-for-age) and weight (weight-for-height). Its composite nature makes interpretation complex. For example, weight-for-age fails to distinguish between short children of adequate body weight and tall, thin children. However, in the absence of significant wasting in a community, similar information is provided by weight-for-age and height-for-age in that both reflect an individual's or popula-tion's long-term health and nutritional ex-periences. Short-term changes, especially reductions in weight-for-age, reveal changes in weight-for-height. In general terms, the worldwide variation of low weight-for-age and its age distribution are similar to those of low height-for-age.

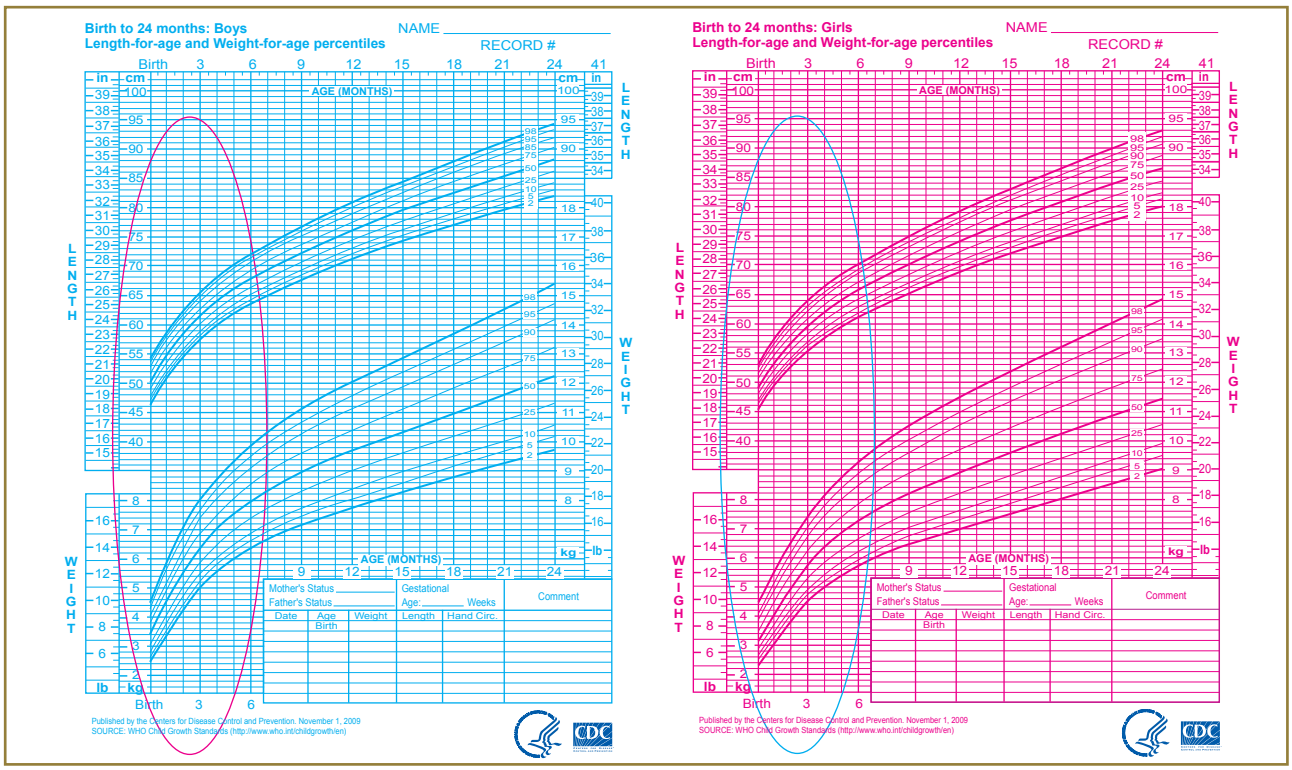
❏ *Low height-for-age*

Stunted growth reflects a process of failure to reach linear growth potential as a result of suboptimal health or nutritional conditions. On a population basis, high levels of stunting are associated with poor socioeconomic conditions and increased risk of fre-quent and early exposure to adverse conditions such as illness or inappropriate feeding practices. Similarly, a decrease in the national stunting rate is usually indicative of improvements in overall socioe-conomic conditions of a country. The worldwide variation of the prevalence of low height-for-age is considerable, ranging from 5% to 65% among the less-developed countries. In many such settings, prevalence starts to rise at about 3 months of age; the process of stunting slows at around 3 years of age, after which mean heights run parallel to the current international reference. Therefore, the age modifies the interpretation of findings:

For children in the age group below 2-3 years, low height-for-age probably reflects a continuing process of “failing to grow” or “stunting”; for older children, it reflects a state of “having failed to grow” or “being stunted.” From the point of view of interventions, it is important to differentiate between these two groups.

❑ *Low weight-for-height*

Wasting or thinness indicates in most cases a recent and severe process of weight loss, which is often associated with acute starva-tion or severe disease. However, wasting also may be the result of chronic unfavor-able conditions. Provided there is no severe food shortage, the prevalence of wasting is usually below 5%, even in poor countries. The Indian subcontinent, where a higher prevalence of wasting is found, is an important exception.



A prevalence between 10% and 14% is regarded as serious and above or equal to 15% as critical. Typically, the prevalence of low weight-for-height reaches a peak in the second year of life.

❑ *High weight-for-height*

Overweight is the preferred term for de-scribing high weight for-height. Even though there is a strong correlation between high weight-for-height and obesity as measured by adiposity, greater lean body mass can also contribute to high weight-for-height. On an individual basis, therefore, “fatness” or “obesity” should not be used to describe high weight-for-height. However, on a population-wide basis, high weight-for-height can be considered as an adequate indicator of obesity because the majority of indivi-duals with high weight-for-height are obese.

Other available anthropometric indicators that are used to describe growth status during childhood include Mid-Upper Arm Circumference (MUAC), Body Mass Index (BMI), Skinfolds and Head circumference; however, none of these has achieved such wides-pread use as the height and weight-based indicators mentioned due, in part, to the lack of widely accep-table pediatric reference data for their interpretation.

Causes

Growth retardation occurs for a number of reasons. Children may have an inherited abnormality in their cells or tissues. Children also suffering from malnu-trition or low oxygen intake. Children birthmother, may have health problems that lead to IUGR. IUGR can start at any stage of pregnancy. A number of factors increase child's IUGR risk. These factors are divided into three categories: maternal factors, fetal factors and uterine/placental factors.

Uter-ine/placental factors are also referred to as intrauterine factors.

Maternal Factors

- ❏ Chronic diseases, such as chronic kidney disease, diabetes, heart disease and respiratory disease
- ❏ High blood pressure
- ❏ Malnutrition
- ❏ Anemia
- ❏ Certain infections
- ❏ Substance abuse
- ❏ Smoking

Fetal Factors

- ❏ Infection
- ❏ Birth defects
- ❏ Chromosome abnormalities
- ❏ Multiple gestation pregnancy

Intrauterine Factors

- ❏ Decreased uterine blood flow
- ❏ Decreased blood flow in your pla-centa
- ❏ Infections in the tissues around your fetus

A condition known as placenta previa can also cause IUGR. Placenta previa occurs when placenta attaches too low in uterus.

Consequences Of Impaired Growth

The health and social consequences of the current high prevalence of fetal and child growth retardation in developing countries are severe. Fetuses suffering from growth retardation have higher perinatal morbidity and mortality, are at an childhood morbidity. During childhood, they are more likely to have poor cognitive development and neurologic impairment; in adulthood, they are at increased risk of cardiovascular disease, high blood pressure, obstructive lung disease, diabetes, high cholesterol concen-trations and renal damage. Newborns with IUGR have lower levels of insulin-like growth factor 1 and higher growth hormone levels, indicating an endocrine process that could be related to these long term impairments. The major outcomes of poor growth during childhood can be classified in terms of mortality, morbidity (incidence and severity) and psychological and intellectual development. There are also important consequences in adult life in terms of body size, work and reproductive performances and risk of chronic diseases. A number of studies have demonstrated the association between increasing severity of anthropometric deficits and mortality.

It is now recognized that growth retardation has a far more powerful impact on child mortality than has been traditionally recognized, which in turn has important implications for policy and programs addressing child survival. Overall, 52.5% of all deaths in young children were attributable to under nutrition, varying from 44.8% for deaths because of measles to 60.7% for deaths due to diarrhea. The majority of deaths were caused by the potentiating effect of mild to moderate low weight for age as opposed to severe low weight for age. Thus, strategies that focus only on severely malnourished children will be insufficient to improve child survival in a meaningful way. The most significant impact can be expected when all grades of severity are targeted. Similarly, children suffering from impaired growth tend to have more severe diarrheal episodes and are more susceptible to several infectious diseases frequently seen in developing countries, such as malaria or meningitis. The risk of pneumonia is also increased in these children and a number of studies have demonstrated a relationship between growth status and school performance and intellectual achievement. Child stunting leads to significant reduction in adult size; one of the main consequences of small adult size resulting from stunting during childhood is reduced work capacity, which in turn has an impact on economic productivity.

For women, maternal size is associated with specific reproductive outcomes. Percentage of women with short stature varies strikingly according to the degree of stunting at 3 years of age. 65% of the girls severely stunted at age of 3 had short stature when they became adults. Short women are at a greater risk for obstetric complications because of smaller pelvic size. There is also a strong association between maternal height and birth weight. This results in an inter-generational effect since LBW babies are themselves likely to have anthropometric deficits at later ages. These LBW babies, born to stunted mothers, contribute to closing the intergenerational cycle by which low maternal size and anemia predispose to LBW babies, which in turn predisposes to growth failure of children, leading back to small adults. Also, the occurrence of early pregnancy will contribute both in terms of LBW and inducing premature cessation of growth in the mother.

The implications of this vicious cycle are enormous for the human and socioeconomic development of the affected populations. In summary, the magnitude of the problem and the severity of the health and social consequences associated with impaired growth cannot be over emphasized. Child growth is a major determinant of human development. There is thus an urgent need to develop or identify effective community-based interventions for improving child growth and development. Population wide interventions aimed at preve-nting IUGR are also urgently required given the strong association between pre- and postnatal growth and the magnitude of fetal growth retardation in developing countries.

Interventions

The strategies during pregnancy(e.g. social support for women at risk, strategies to stop smoking, nutritional advice); nutrition supplementation (e.g., protein energy, vitamin and minerals, ant anemic supplements, fish oil supplementation); and prevention/tre-atment of hypertensive disorders, fetal compromise, and infections. Based on this review, only 2 of 24 no nutritional interventions (i.e., strategies to reduce maternal smoking and antimalarial chemoprophylaxis in prim gravida) provided evidence they were beneficial. The systematic review of the use of antimalarial drug chemoprophylaxis showed that malaria chemoprophylaxis was associated with higher maternal hemoglobin levels and birth weights. These effects were more prominent in prim gravidae, who are known to be more susceptible. Only 1 of the 12 nutritional interventions (i.e., balanced protein energy supplementation) Showed a reduction in the incidence of IUGR. Zinc, folate and magnesium supplementation should be rigorously evaluated. Appropriate combinations of interventions (e.g., a combination of ant anemic [iron-folate] and antimicrobial/ant parasite agents tested in population based trials) should be rigorously evaluated since it is very unlikely that the intergenerational and intergenerational effect of deprivation and poverty on maternal and fetal health can be overcome by a single inter-vention or treatment. Simple solutions will not resolve the problem of fetal malnutrition and its associated outcomes.

The World Health Organization recently conducted a comprehensive review evaluating the effectiveness of interventions aimed at improving physical growth or psychological development during childhood. So, we should maintain following things, Nutrition interventions significantly improve physical growth in poor and malnourished populations. Balanced protein-energy supplementation during pregnancy improve birth weight and reduce the incidence of IUGR. Food supplementation for infants and young children has documented impacts on physical growth. Other types of effective nutrition interventions include caregiver education about feeding practices for young children, breast feeding promotion and zinc supplementation in zinc deficient areas. Programs that include education, food supplementation, or micronutrient supplementation can result in reductions in the prevalence of moderate and severe growth retardation. Nutrition interventions significantly improve psychological development in disadvantaged populations. Increased intake of nutrients and energy during the first 2 years of life and prenatally through supplements to mothers, have significant positive impacts on cognitive and motor development. For example, interventions interventions to prevent iodine deficiency have dramatic effects on cognitive development as well as preventing the physical stunting that accompanies iodine deficiency.

Conclusions

The future of human societies relies on the ability of children to achieve their optimal physical growth and mental development. Never before has there been so much knowledge to assist families and societies in their desire to raise children to reach their full potential. A fundamental need is to focus the attention of policymakers on nutritional status as one of the main indicators of development and as a precondition for the socioeconomic advancement of societies in any significant long-term sense. A good start in life will pay off, in terms of both human capital and economic development.

References

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- www.pediatrics.org
- Lancet.

Glimpse of MSD Activities

BMA Barishal

Monno Medical College & Hospital

National Institute of Diseases of the Chest and Hospital

National Institute of Traumatology & Orthopaedic Rehabilitation

Test Yourself - 46

Correct Answers :

1.	b	2.	b	3.	a	4.	c	5.	b	6.	c

CONGRATULATIONS!

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Test Yourself - 47

1. The following are true for "Acute Cholangitis" except:

a. Local symptoms for acute cholangitis are abdominal pain and jaundice.

b. Inflammation in acute cholangitis is difficult to assess on diagnostic imaging.

c. Prognosis does not depend on early recognition and treatment of cholangitis.

d. ERCP is the gold standard test for diagnosis of cholangitis.

2. All the following are correct for "Childhood Growth Retardation" except:

a. The most rapid phase of human growth is intrauterine.

b. The average length of an infant at birth is about 20 inches.

c. Secretion of growth hormone (GH) by the pituitary is stimulated by growth hormone-releasing hormone from the hypothalamus.

d. Incidence of IUGR-LBW is about two times higher in developing than in developed countries.

3. All the followings are correct for "Acute Cholangitis" except:

a. Grade III (severe) acute cholangitis associated with neurological dysfunction.

b. Grade II (moderate) acute cholangitis associated with abnormal WBC count(>12,000/mm3, <4,000/mm3).

c. Acute cholangitis should be managed in accordance with its severity.

d. Grade I (mild) acute cholangitis associated with hyperbilirubinemia.

4. All the followings are correct for "Coping with Cancer" except:

a. Cancer causing infections, such as hepatitis and human papilloma virus (HPV), are responsible for up to 50% of cancer cases in low- and middle income countries.

b. Approximately 70% of deaths from cancer occurin low- and middle-income countries.

c. Cancer is the second leading cause of death globally and was responsible for 8.8 million deaths in 2015.

d. Tobacco use is the most important risk factor for cancer.

5. All the following are correct for "Childhood Growth Retardation" except:

a. The prevalence of low weight-for-height reaches a peak in the 1st year of life.

b. Weight-for-age reflects body mass relative to chronological age.

c. Stunted growth reflects a process of failure to reach linear growth potential as a result of suboptimal health or nutritional conditions.

d. Low height-for-age probably reflects a continuing process of "failing to grow" or "stunting.

6. The following are true for "Coping with Cancer" except:

a. Head and neck, laryngeal cancers are associated with communication difficulties.

b. Respiratory cancers are associated with disfigurement.

c. Gynecological, colorectal cancers are associated with odour.

d. All cancers are associated with lymphedema.

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