

골수이식 환자간호

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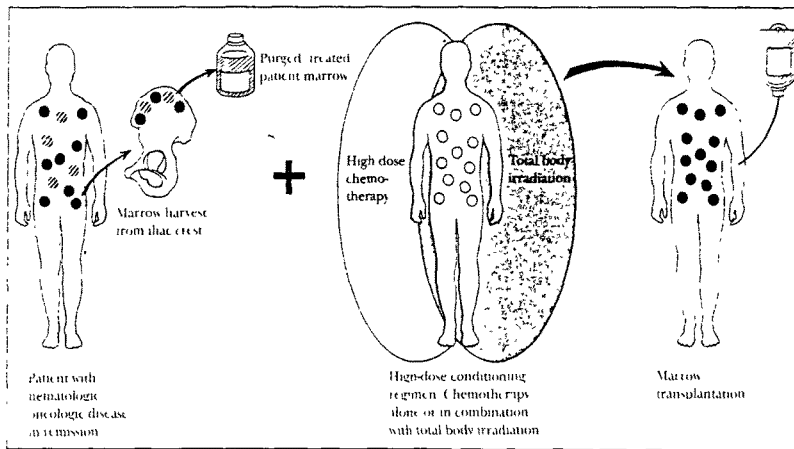
1. 골수이식 환자간호

1) 골수이식 대상자에 대한 이해

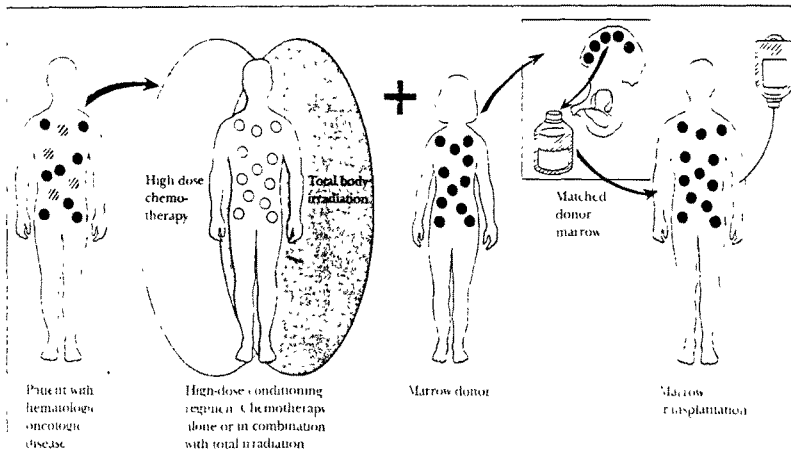
골수이식이 시작하면서 골수이식 간호의 영역역시 급격히 확장되고 있다. 또한 골수이식 간호의 특징은 대상자의 다양함과 이식과정의 복잡성 때문에 복잡적이고 영역의 확장이 계속 요구되는 것이다.

골수이식은 자가 조혈모세포 이식과 제대혈 이식의 시작과 더불어 그 대상자의 연령과 질환이 점점 다양해지고 있다.

따라서 골수이식 환자를 간호하는 간호사는 대상 환자별, 질환별 이해와 골수이식의 mechanism에 대한 이해까지 실로 폭넓고 깊은 지식과 환자에 대한 이해와 간호에 대한 깊은 통찰력을 가지고 있어야 한다.



Schematic for autologous bone marrow transplantation



Schematic for allogeneic bone marrow transplantation

2) Critical Care aspect

- ① electrolyte and fluid management
- ② aplasia
- ③ sepsis
- ④ severe GVHD
- ⑤ Transfusion
- ⑥ nutrition management
- ⑦ Ventilatory / Hemodialysis care
- ⑧ 각종 monitor

3) Complication Management

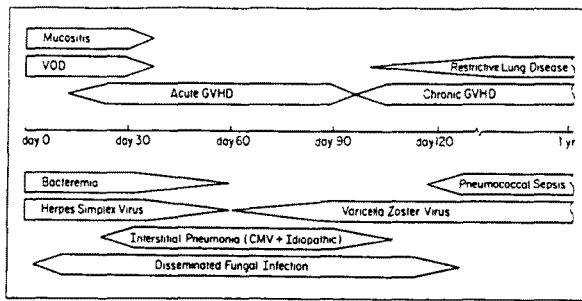
- ① management of mucositis
- ② skin care
- ③ indwelling venous catheter care
- ④ isolation procedure
- ⑤ drug side effect

4) Education

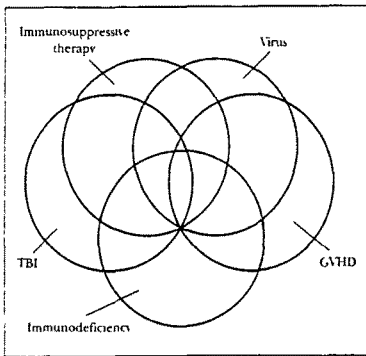
- ① 대상자 및 가족 교육
- ② pre-evaluation에 따른 검사교육
- ③ 무균실 (LAFR) 생활 교육
- ④ 퇴원교육
- ⑤ 중심정맥관 관리 교육
- ⑥ 가정생활에 따른 개별 교육

5) Supportive care

- ① psychosocial support
- ② patient group support
- ③ counselling
- ④ family dynamics support
- ⑤ fatigue / quality of life



Temporal sequence of major complications after allogeneic bone marrow transplantation, from day 0 to 1 year after BMT (Source: Press GW, Schaller RT, Thomas ED. *Complications of Organ Transplantation*. New York: Marcel Dekker; 1987. Fig 1. Reprinted with permission of Marcel Dekker, Inc.)



The multifactorial nature of acute and chronic complications following marrow transplantation (Source: Degg JH. Delayed complications of marrow transplantation. *Marrow Transplant Review* 2:11, 1992. Reprinted with permission.)

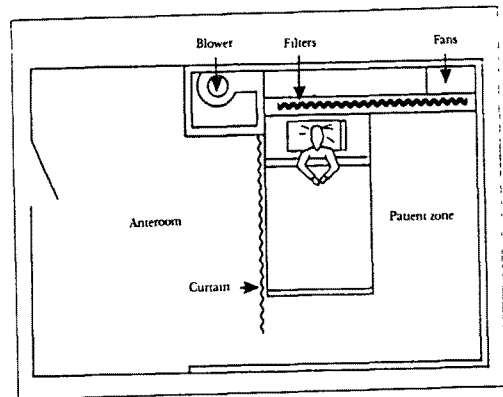


Diagram of a laminar air flow room. A plastic barrier separates the sterile patient zone from the outer zone. Patient decontamination may occur via drinking nonabsorbable antibiotics and application of antibiotic creams and powder to various body areas.

2. 골수이식후 급성부작용

* ACUTE COMPLICATION

- GVHD (acute)
- infection
- hemorrhage
- VOD
- renal complications
- hemorrhagic cystitis
- graft failure
- pulmonary complications
- neurologic complications
- nutritional compromise

1) ACUTE GRAFT VS. HOST DISEASE (GVHD)

(1) PATHOPHYSIOLOGY

- ① Unique to allogenic BMT
- ② Immune response elicited by immuno-competent donor T-lymphocyte against host cells ; T-lymphocytes in the new immune system (the graft) view the recipient (host) a foreign and attack the patient's tissue
- ③ Appears in the first 100 days of transplantation
- ④ Target organ : Skin, GI, Liver
- ⑤ Results in cellular and humoral immune deficiency

(2) INCIDENCE

- ① 25 ~ 49% / 45% / 30 ~ 60% of allogenic BMT
- ② Median onset : day 25 post transplant
- ③ Range of onset is: 10 ~ 90 days post-transplant

(3) RISK FACTORS

- ① HLA mismatch
- ② Unrelated donor
- ③ Increasing age of recipient or donor
- ④ Prior donor pregnancies
- ⑤ Prior herpes virus infections
- ⑥ Transfusion of non-irradiated blood products and increased number of post-transplant transfusion
- ⑦ Low pretransplant performance status or Karnofsky score

(4) CLINICAL MANIFESTATIONS

- ① Skin GVHD
 - first system to show
 - maculopapular erythematous rash on the palms, soles, ears → trunk → generalized erythroderma, with bullous/blister formation and subsequent desquamation of the skin
- ② Liver GVHD
 - Increase in Liver enzymes, especially bilirubin alkaline phosphate
 - Complain of RUQ pain
 - Hepatomegaly
 - Progress to jaundiced
- ③ Gut GVHD
 - Green, watery diarrhea
 - Complain of abd. cramping, anorexia, nausea & vomiting

(5) DIAGNOSIS

- ① Clinical
- ② Laboratory

- ③ X-ray data
- ④ Biopsy of involved tissue (skin, liver, lower colon)

(6) NURSING MANAGEMENT

① Skin GVHD

- Cleanse skin with mild antimicrobial soap and rinse well
- Prevent dryness with frequent lubrication
- Prevent injury to skin
- Apply lubrication and antimicrobial creams/ointments
- Apply hydrogel dressings and secure with gauze wraps
- Allow debridement of loosened skin during dressing changes and baths
- Monitor response to pain management

② Liver GVHD

- Monitor liver function tests and coagulation studies
- Assess color of skin / sclera
- Monitor for signs of bleeding
- Maintain fluid and electrolyte balance / restriction
- Monitor changes in renal function
- Take daily weight and abdominal girth measurements
- Assess neurologic status

③ GUT GVHD

- Monitor character and guaiac of stool and emesis
- Strictly monitor intake and output / weight
- Evaluate oral / enteral nutrition and fluid intake
- Maintain NPO diet when indicated
- Administer parenteral nutrition
- Administer analgesics for severe pain caused by cramping
- Monitor response to antiemetics
- Maintain meticulous perianal care with cleansing and protective lubricants
- Maintain meticulous oral hygiene with normal saline mouth rinses

(7) CLINICAL STAGE OF ACUTE GVHD

stage	skin	liver	gut
+	maculopapular rash	bilirubin 2~3mg/dl	diarrhea 500~1000ml
++	maculopapular rash	bilirubin 3~6mg/dl	diarrhea 1000~1500
+++	generalized	bilirubin 6~15mg/dl	diarrhea > 1500
++++	desquamation and	bilirubin > 15mg/dl	pain or ileus

- ⑤ Women on estrogen-progesterone therapy.
- ⑥ Increasing age
- ⑦ GVHD prophylaxis eg. with cyclosporin and MTX.

(4) DIAGNOSIS OF VOD

- ① Weight gain, jaundice, hepatomegaly and RUQ abd. pain.
- ② Mild to moderate elevation in serum transaminases and alkaline phosphatase
- ③ In severe case, ascites and hepatic encephalopathy may develop
- ④ With prolonged liver dysfunction, prerenal failure may occur

(5) CLINICAL COURSE OF VOD

- ① Majority of patients recover within 3~4 weeks
- ② Death occurs in 20% of those who develop clinically manifest VOD.

(6) PREVENTION AND TREATMENT OF VOD

- ① Low dose heparin effective in decreasing incidence of VOD without added risk of bleeding
- ② Sodium & fluid restriction
- ③ Maintain hematocrit > 40%
- ④ Use of albumin, diuretics and renal dose dopamine
- ⑤ Thrombolytic therapy ; r-TPA
- ⑥ Surgical management includes portasystemic shunts and liver transplants.

(7) NURSING MANAGEMENT

- ① Interventions aimed at maintaining intravascular volume and renal perfusion
- ② Administer albumin as ordered to maintain serum albumin > 3.0
- ③ Transfuse RBCs as ordered to the total osmotic load and provide sufficient O₂ to hepatocytes and renal tubular cells.
- ④ Maintain Na and protein restriction (both parenteral and dietary) : maintain fluid restriction (IV and PO)
- ⑤ Assess daily weights and postural B/P (evaluating fluid status) and abdominal girths.
- ⑥ Assist with paracentesis if needed.
- ⑦ Monitor LFTs and coagulation profile ; assess for jaundice, hepatomegaly and RUQ pain
- ⑧ Anticipate orders to avoid drugs which rely heavily on liver for metabolism.

3. 골수이식후 만성 부작용

골수이식은 고용량의 항암제와 전신 방사선 조사, 골수이식으로 인한 면역체계의 변화등에 의해 1년이후에 발생하는 만성 부작용의 발생 빈도가 높다.

이러한 만성 부작용은 환자의 생존률과도 관계되며 그보다 환자의 삶의 질에 중대한 영향을 주게 되므로 가능한 예방이 최선의 방법이다.

만성부작용이란 이식후 100일 이후부터 발생하는 것을 말한다.

1) 골수이식과 관련된 증상 과 원인

Symptoms	Possible causes
Fever	Infection(Bacteria, fungus), Interstitial pneumonia(bacterial, viral, idiopathic), Viral infection, GVHD, Hepatitis, Granulocytopenia, Transfusion, Recurrent disease
Nausea, Vomiting	GVHD, GI infection
Diarrhea	Mucositis, Leukoencephalopathy, Hematoma, Septicemia, Liver disease, Cholecystitis, Pancreatitis, Hyperalimentation withdrawal, Drug toxicity
Bleeding	Thrombocytopenia, Gut GVHD, Hemorrhagic cystitis, Drug toxicity, HSV infection
Pruritus	GVHD, HVZ infection, Drug toxicity, Transfusion
Rash	GVHD, HSV, Drug toxicity
Fatigue	Altered sleep patterns, Premature menopause, Stress
Dyspnea	Pulmonary infection, Restrictive/obstructive lung disease, CMV pneumonia
Pain	Herpes zoster, GVHD, Peptic ulcer, Mucositis, Gastritis
Weight loss	Dehydration, Mucositis, GVHD, Malabsorption
Jaundice	GVHD, Infection, Drug toxicity, Hepatitis

2) 전처치로 인한 만성부작용과 간호중재

골수이식시 고용량의 항암제와 전신 방사선조사는 환자의 주요장기에 치명적인 영향을 주게된다.

특히 방사선조사는 만성적인 조직손상을 유발하므로 전처치에 전신방사선조사를 받은 환자는 만성부작용의 발생에 보다 세심한 관찰이 요구된다.

골수이식은 환자의 면역체계에 대충란을 야기시키므로 골수기능이 회복된 후에도 바이러스나 진균에 의한 감염에는 지속적인 주의가 필요하다.

사실상 이식후 100일이후 1년사이에 바이러스나 진균에 의한 감염 때문에 재입원 하는 경우가 많으며 이로인한 환자의 주요장기의 기능저하가 나타나기도 한다.

3) 만성 이식편대 숙주반응과 간호중재

이식후 발생하는 이식편대 숙주반응은 발생시기에 따라 급성과 만성으로 나누고 있다.

급성과 만성은 나타나는 양상이나 호발부위가 서로 다르며 만성 이식편대 숙주반응은 환자의 생존률보다 삶의질에 더욱 큰 영향을 주고있다.