手術治療（針對腸穿孔）

如病情嚴重導致腸穿孔併發腹膜炎或敗血病時，嬰兒則需要接受手術治療由小兒外科醫生將壞死的腸部份切除。視乎嬰兒病情，醫生或會為嬰兒設置暫時造口，讓大便排到體外的造口容袋以便腸道休息。約八個星期後，如顯影檢查確定腸段暢通，醫生便會為嬰兒進行手術重新縫合腸道。但如嬰兒情況不穩定而未能接受手術，醫生會先為嬰兒插入腹腔導管進行引流，待嬰兒情況穩定後再進行手術切除壞死的腸部份。

併發症

大多被診斷壞死性小腸結腸炎的嬰兒能完全康復，並且沒有餵哺問題。有極少數(≦5%)的嬰兒會出現腸梗阻，並需要進一步的手術治療。亦有個別嬰兒因為腸道大部份被除去，以致影響營養吸收(短腸綜合症)，而需要較長時間輸注營養液輔助成長。

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治療和護理之流程圖

診斷為壞死性小腸結腸炎

保守治療

- 停止餵奶
- 輸注點滴或營養液
- 插入胃喉以幫助胃減壓
- 抗生素治療
- 有需要時提供氧氣/呼吸機等輔助

病情好轉

病情轉壞，腸穿孔

嬰兒情況不穩定以接受手術

嬰兒會被轉送到設有小兒外科服務的醫院接受手術

插入腹腔導管

穩定後

手術治療，移除壞死的腸部份

有需要時設置造口

數星期後

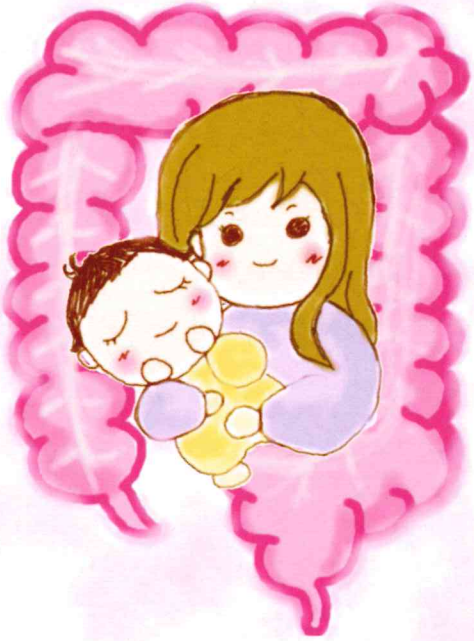
顯影檢查確定腸段暢通

進行手術重新縫合腸段

恢復餵哺，但奶量將慢慢增加以免對腸部造成負荷

鳴謝 新界西醫院聯網病人啟力基金

壞死性小腸結腸炎



新界西・醫院聯網
New Territories West Cluster

屯門醫院兒童及青少年科

印刷日期：2016年11月

何謂壞死性小腸結腸炎？

壞死性小腸結腸炎（NEC）是由於早產，腸臟缺氧和細菌感染引發的腸道內壁損傷。這會令腸道出現受損甚至嚴重腸穿孔。當腸穿孔發生時，在腸道內的細菌可能進入嬰兒的腹腔和血液，引起如腹膜炎或敗血症等危及生命的併發症。

壞死性小腸結腸炎的發病率？

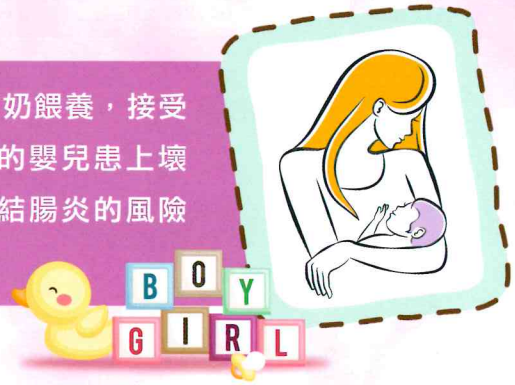
壞死性小腸結腸炎多發於早產兒，於出世體重少於1.5 kg 的嬰兒發病率為6-10%。大部份患上壞死性小腸結腸炎的嬰兒經治療後都能康復。但亦有少部分併發腹膜炎或敗血病的嬰兒需要接受手術切除壞死的腸部份或設置腸造口。

壞死性小腸結腸炎的成因是甚麼？

壞死性小腸結腸炎的確切原因未明，但以下為一些高風險的因素：

- 早產兒
- 腸臟發展未成熟
- 配方奶餵養較純母乳餵哺風險高出6倍
- 腸道細菌群
- 腸道缺氧或缺血
- 先天性心臟病

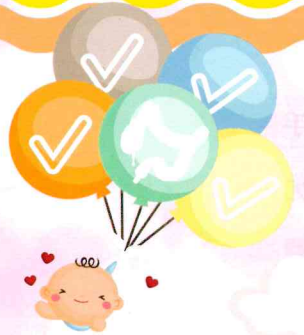
（相對配方奶餵養，接受母乳餵哺的嬰兒患上壞死性小腸結腸炎的風險較低。）



常見症狀

壞死性小腸結腸炎常見的症狀包括：

- 活躍程度下降
- 體溫不穩定
- 消化能力下降
- 綠色嘔吐物/胃液
- 腹部脹大，泛紅及變硬
- 便秘
- 腹瀉，血便等



治療和護理

壞死性小腸結腸炎因應嚴重情況分為第一期（疑似期）、第二期（確診期）和第三期（惡化期）。所有被診斷患上壞死性小腸結腸炎的嬰兒均需要接受密切觀察，(如定期腹部X光、維生指數監察等)及保守治療。患上第三期並出現腸穿孔的嬰兒必須接受手術治療。

保守治療

- 停止餵奶讓腸胃得到休息(為期3-14日，視乎醫生根據嬰兒的臨床情況決定)
- 輸注點滴或營養液以供給營養
- 插入胃喉以抽出或引流胃氣及胃液，以舒緩脹氣的不適
- 注射抗生素
- 在需要時給予氧氣或呼吸機等輔助呼吸

當嬰兒痊癒後，將會恢復餵哺，但奶量將因應嬰兒情況慢慢增加。這時可優先考慮以母乳餵哺。因為母乳比配方奶更容易消化，能夠促進腸內益生菌生長並增強嬰兒的免疫能力。

Surgical Management (for bowel perforated)

If the condition deteriorates, the baby may need to proceed to surgical management. During the procedure, surgeons examine the abdominal cavity to remove any diseased section of the intestine. If a large section of the intestine was removed, an ostomy will be performed. During the procedure, a stoma is created by bringing the free ends of the intestines to the skin so that stools can be passed out into a stoma bag.

After few weeks, another operation will be done to close the stoma and reconnect the two ends of intestines after bowel patency is confirmed by contrast studies. If the baby is not stable enough to stand the stress of the operation, an abdominal drain may be inserted to decompress gas in peritoneal cavity as a conservative treatment.

(Baby may be transferred to another hospital depends on operation needs.)

Complications

Most babies who develop NEC will fully recover and do not have further feeding problems.In some severe cases (≦5%), intestinal blockage may happen, of which further surgery is needed. For babies whose large portion of intestine is removed, malabsorption of diet leading to short gut syndrome and malnutrition may happen and long term parenteral nutrition might be needed.

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Treatment and Care Pathway

Diagnosed with NEC

Medical Management

- Temporarily withhold feeding for bowel rest
- Fluid and nutrition to be given via an indwelling venous line
- Orogastric tube insertion for gastric decompression
- Antibiotics therapy
- Respiratory/circulatory support as necessary

Condition improved

Condition deteriorates with bowel perforation

Not stable to have surgery

Transfer to a hospital with surgical service

Abdominal drain

Stabilized

Undergo surgery with deceased parts of bowel removed

If a large section of the intestine was removed, a stoma is created

Few weeks later

Bowel patency is confirmed by contrast studies

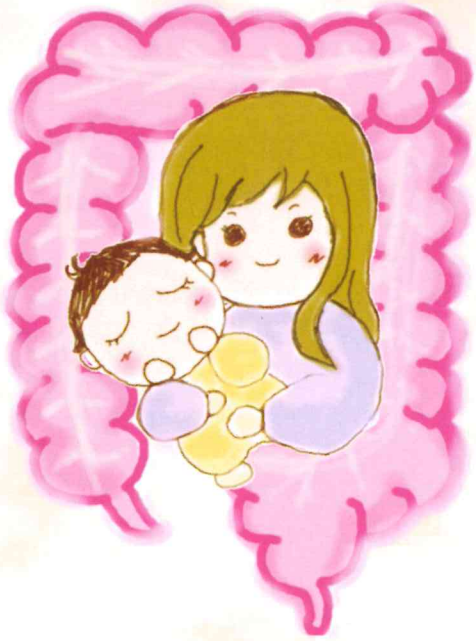
Surgery to reconnect intestines

Slowly resume feeding

Acknowledgement Patient Empowerment Programme
New Territories West Cluster

Date of Printing : Nov. 2016

Necrotizing Enterocolitis (NEC)



新界西·醫院聯網
New Territories West Cluster

Tuen Mun Hospital
Department of Paediatrics & Adolescent Medicine

What is Necrotizing Enterocolitis (NEC)?

Necrotizing enterocolitis (NEC) happens when the tissue of the immature intestine gets inflamed and damaged. Several risk factors of NEC include prematurity, ischemia and heavy growth of bacteria interact to initiate intestinal lining damage. This may progress to severe damage of the bowel and subsequently bowel perforation. When this happens, the waste product in the intestine may enter baby's abdominal cavity and bloodstream leading to a life-threatening infection.

How common is NEC?

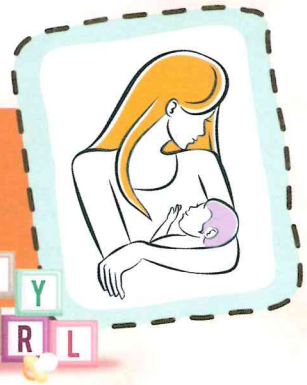
NEC is predominantly a disease of the premature babies with an incidence rate of 6-10% in infants weighing less than 1.5 kg. Although the majority of patients with mild NEC recover without sequalae, a small group of these patients with severe NEC may develop bowel perforation and peritonitis which may lead to death.

What causes NEC?

The exact cause of NEC is unknown, but it is believed that several risk factors contribute to the development of NEC. These include :

- Prematurity
- Underdeveloped intestine
- Formula feeding (6 times more common than if only breast milk fed)
- Heavy growth of bacteria in the intestine
- Impaired blood and oxygen supply to the gut
- Congenital heart disease

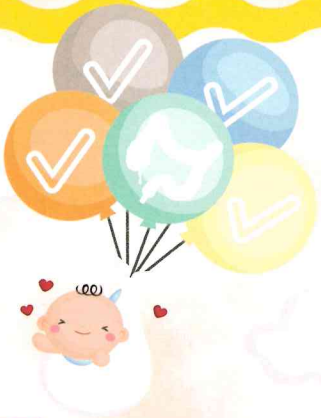
On the other hand, feeding with breast milk reduces the chance of NEC



Signs and Symptoms

The symptoms of NEC may vary in severity from baby to baby. Common symptoms include :

- Being less active
- Fever or unstable body temperature
- Milk intolerance
- Greenish gastric aspiration/ vomits
- Swollen/ red abdomen
- Constipation
- Diarrhea and / or dark or bloody stools



Treatment and Care

NEC can be a medical emergency. There are 3 stages of NEC: Stage I (Suspected), Stage II (Definite) and Stage III (Advanced). Babies diagnosed with NEC require close monitoring in the intensive care unit with medical treatments. For severe stage III NEC with bowel perforated, surgical treatment will be necessary.

Medical Management

- Temporarily withhold feeding for bowel rest (Usually 3-14 days, depends on clinical presentation)
- Fluid and nutrition will be given via an indwelling venous line (total parenteral nutrition)
- Orogastric tube insertion for gastric decompression
- Antibiotics
- Respiratory/circulatory support when necessary

Feeding at a low volume can be resumed when baby's condition become stable with medical treatments. Breast milk is the best choice for the baby because it can be easily digested and supports the growth of healthy bacteria in the intestinal tract, as well as boosting baby's immunity.