DIARRHOEA AND ITS POSSIBLE IMPACT ON SKIN HEALTH

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Mary Wilson outlines the causes of diarrhoea, why bowel control may be lost when stools are loose, the potential damage to the skin and how this can be minimised. It is important that appropriate interventions are employed to treat the cause of the diarrhoea but these are not discussed in this article.

Diarrhoea may be either acute or chronic in nature and can be due to more than one cause (Bell, 2004). It is defined as the abnormal passage of loose or liquid stools more than three times, and/or of a volume of stool greater than 200g, in 24 hours (Thomas et al, 2003).

Causes of chronic diarrhoea

Chronic diarrhoea is one of the most common reasons for referral to gastroenterology clinics (Thomas et al, 2003).

● Colorectal conditions. Inflammatory bowel disease (IBD) such as Crohn’s disease and ulcerative colitis, colorectal cancer, irritable bowel syndrome and diverticular disease are all associated with diarrhoea. In IBD, diarrhoea is an indicator of active inflammation, which interferes with the absorption of fluid from the bowel contents.

● Surgery of the colon and ileum. The right colon acts as a reservoir, allowing water absorption from faecal matter; resection in this area can decrease intestinal transit time and reduce the absorptive surfaces, leading to watery stools. Extensive resection of the ileum and right colon causes malabsorption of fat, carbohydrate and bile acid and can lead to diarrhoea. The depletion of fat absorption leads to steatorrhoea, where the stools are characteristically offensive, greasy and float in the toilet. Following shorter resections involving the terminal ileum, diarrhoea can occur after meals as a result of bile salts entering the colon and causing more intestinal secretions. Malabsorption of bile acid after cholecystectomy can also lead to diarrhoea. Bile acid after cholecystectomy can also lead to diarrhoea.

● Pancreatic disease. Reduced pancreatic function associated with alcohol misuse, chronic pancreatitis or the blocking of the pancreatic duct with thick mucus in cystic fibrosis can lead to malabsorption, because of a lack of pancreatic enzymes to digest fat and protein.

● Systemic causes. Diarrhoea can occur as a result of systemic sclerosis, thyrotoxicosis, and parathyroid and adrenal disease. Bacterial overgrowth in the small bowel (where the bacterial count is usually low) can occur as a result of diabetes mellitus type 2 (Wigg et al, 2001), autonomic neuropathy and some types of gastric surgery, and this can cause diarrhoea (Bell, 2004; Thomas et al, 2003).

● Food intolerance. This includes sensitivity to gluten (coeliac disease) and lactose intolerance. Symptoms of diarrhoea improve with appropriate dietary exclusions.

● Osmotic diarrhoea. This occurs where large amounts of non-absorbable material, for example, magnesium sulphate (Epsom salts) draws water into the gut (Bell, 2004; Thomas et al, 2003).

● Post radiotherapy. Diarrhoea may result from radiation enteritis (Bell, 2004).

● Secretory diarrhoea. This is associated with rare tumours that cause the overproduction of vasoactive intestinal peptide, a hormone that stimulates secretion of electrolytes and hence water from the intestinal glands. Diarrhoea occurs when the secretion exceeds the absorption capacity of the gut or where there is inhibition of ion transportation and therefore absorption of water from the colon (Metcalfe, 2007; Bell, 2004; Thomas et al, 2003; Ganong, 1995).

● HIV. Patients frequently have diarrhoea attributed to chronic infection, bacterial overgrowth and lactose intolerance (Bell, 2004).

● Laxative abuse/factitious diarrhoea. Diarrhoea may result from laxative abuse in eating disorders or for other reasons, including malingering (where there is a primary gain, for example...
Skin care.

Use of anal plugs

Herbert, J. (2008) Perineal skin


Kumar, V. et al (2007) Laxative use

incontinent client’s skin.


References


BOX 1. USEFUL PRODUCTS FOR SKINCARE

- Cleansers (liquid, emulsion, foam or impregnated wipe) – ideally around pH 5.5 – remove irritants and bacteria from the skin (although more evidence is needed on the routine use of antibacterial agents in cleansers) (Gray et al, 2002a; 2002b).
- Moisturisers (may be combined with cleanser) – replace oils and improve ‘barrier’ function (Gray et al, 2002a).
- Barrier creams/ointments/pastes; should be smoothened onto the skin sparingly, in the direction of hair growth (Le Lievre, 2002). Excess will clog the pores on the surface of body-worn absorbent pads (Norton, 2006). Barrier creams should be removed and reapplied after each episode of incontinence.
- Creams are water-based (they may contain lanolin, to which some people are allergic).
- Ointments are oil-based and longer-lasting.
- Pastes are ointments with powder added and are used to treat extensive excoriation (Gray et al, 2002a).
- Water-in-oil emulsion, for example Cavilon barrier cream, is economical, resists washing away, and does not clog the surface of body-worn absorbent pads (Williams, 2001).
- Polymeric-based non-alcoholic barrier film, for example Cavilon film, is used to protect skin and is effective for up to 72 hours (Williams, 2001). These products can irritate broken skin.
- Newer non-rinse cleansers (for example Clinisan foam cleanser or Tena Wash Mousse), followed by a barrier cream or washcloths that cleanse, moisturise and apply protectant, are both effective and time saving (Norton, 2006).

Missing work), Munchausen’s syndrome and Munchausen’s syndrome by proxy (Kumar et al, 2007; Bell, 2004). Factitious diarrhoea – either from laxative abuse or from adding urine or water to stool specimens – accounts for 20% of referrals to tertiary care for diarrhoea of undetermined origin (Thomas et al, 2003).
- Psychological. Fear and anxiety may cause diarrhoea (Metcalf, 2007; Norton and Chelvanayagam, 2004) and stress may precipitate a relapse of IBS and IBD (Bell, 2004). Factitious diarrhoea – either from laxative abuse or from adding urine or water to stool specimens – accounts for 20% of referrals to tertiary care for diarrhoea of undetermined origin (Thomas et al, 2003).
- Drugs. Antacids containing magnesium, beta-adrenoceptor blocking antihypertensive drugs, serotonin reuptake inhibitors, oral hypoglycaemic agents, iron supplements, diuretics and xanthines including caffeine can all cause diarrhoea. Antibiotics can alter the gut flora, while chemotherapy used to treat cancer can cause inflammation of the gastric mucosa, again, resulting in diarrhoea. The anti-obesity preparation orlistat, which reduces dietary fat absorption, causes oily diarrhoea following fatty food (Thomas et al, 2003; Smith, 1997).
- Running. Around a quarter of competitive runners, typically aged under 35 years, experience vomiting, bloating, faecal urgency and watery diarrhoea during or after running long distances. This is attributed to a transient, reversible mesenteric ischaemia, in which the blood flow can be reduced by up to 80%, leading to segmental ischaemic colitis, while blood is redirected to

Clostridium difficile is associated with watery, offensive, sometimes blood-stained, diarrhoea, high fever and abdominal pain.

- Foods. Non-absorbable carbohydrates, such as bran, or poorly absorbed carbohydrates, for example fructose, mannitol and sorbitol (sugar substitutes), can cause osmotic diarrhoea (Bell, 2004). Loose stools are also common in patients requiring enteral (tube) feeding (Wiesen et al, 2006).
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Acute causes

Impaction with overflow – ‘spurious’ (non-genuine) diarrhoea. Rectal/lower colonic impaction of scybala (hard, rounded stools) stimulates an increase in mucus production. This, together with bacterial activity, breaks down the faeces with which it is in contact. The anal sphincters relax due to rectal distension and liquefied faeces escape (Irvine, 1996).

- Infective diarrhoea. Infection can be viral, bacterial and also protozoan (Metcalf, 2007). Spread is frequently as a result of ingestion (Cowden, 2002) or via the hands of healthcare professionals (McFarland et al, 2003; Smith, 1997).

Norwalk-like viruses cause projectile vomiting and diarrhoea for periods of 24–48 hours. They typically occur where people live close together, for example in residential homes or hospitals (Cowden, 2002). The anal sphincters relax due to rectal distension and liquefied faeces escape (Irvine, 1996).

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working muscles. The condition usually resolves after 24–48 hours (Sanchez et al, 2006; Bell, 2004; Lucas and Schroy, 1998).

**Losing bowel control with diarrhoea**

Faecal incontinence (FI) is more likely to occur when stools are loose, sphincter control is poor and bowel pressures are increased.

There are two anal sphincters: a smooth (non-voluntary) circular muscle, internal sphincter which provides 85% of the anal ‘resting tone’ (maintaining faecal continence between episodes of defecation), and an external sphincter (voluntary muscle) that provides the remaining 15% of the resting tone (Emmanuel, 2004).

Every 8–10 minutes, but lasting for less than 10 seconds, a reflex relaxation of the upper internal sphincter releases a small amount of rectal contents into the anal canal. Contact with the epithelium allows subconscious perception of whether solids, liquids or flatus are present (Emmanuel, 2004), although people experiencing urgency to defecate because of very loose or frequent passage of stools may have difficulty in distinguishing between flatus and faeces (Norton and Chelvanayagam, 2004).

Contraction of both sphincters then returns the sampled material to the rectum, although pre-existing damage to the lower part of the internal sphincter – particularly when the loose stools are present – can lead to passive FI (Bell, 2004; Emmanuel, 2004).

**Defecation**

Rectal fullness causes a sensation of needing to defecate but this can be deferred by voluntary contraction of the external sphincter. If the contraction is insufficient, urge FI may occur, especially when the stool is diarrhoea. Following defecation, inadequate internal sphincter closure may result in passive incontinence of loose stool for several hours or on physical exertion.

**Potential consequences for the skin**

Loose stools overhydrate the skin, making it more at risk from friction and shearing forces and more permeable to chemicals and pathogens that may colonise the skin. One or more of these factors can ultimately lead to breakdown of the skin.

The normal skin pH of around 5.5 provides an acid mantle that inhibits bacterial growth. This is maintained by the production of oils from the sebaceous glands. If the patient is incontinent of faeces and this is left on the skin, ammonia is produced, changing the pH of the skin from acid to alkaline.

The alkalinity increases the skin’s permeability, causes inflammation and produces a burning sensation. Small bowel digestive enzymes are more likely to be present if the patient has diarrhoea and these are irritant to the skin. This is a particular problem when bile salts are present, as these enzymes are reactivated by an alkaline environment (Norton, 2006; Chelvanayagam and Norton, 2004; Gray et al, 2002b; Le Lievre, 2002).

**Management of skincare**

Nurses and patients need to take active steps to manage patients’ skin during an acute episode of diarrhoea, particularly if this is associated with FI. Management is also important for patients with chronic diarrhoea and FI. It is essential that the cause is identified and any appropriate treatment given.

Perianal skin is prone to damage from loose stools when patients are older or in poor health, or have poor diet and fluid intake, diabetes, deep skin folds or skin allergies. A tissue viability assessment using a risk assessment tool can help to identify any potential problems. Skin should be managed to prevent damage and problems such as contact dermatitis, moisture lesions and breakdown identified and managed. Referral to a tissue viability specialist may be required.

Contaminated skin should be cleansed using

**Box 2. Products to avoid in the management of perianal skin**

- Dry wipes, such as toilet roll and tissues, as residue can cause soreness (Norton, 2006).
- Soap increases the pH of the skin and the surfactants cause irritation. It disrupts the lipid and protein components and reduces the thickness of the stratum corneum. Bar soap is associated with cross infection (Gray et al, 2002a; Le Lievre, 2002).
- Talcum powder may cause encrustations when mixed with urine and faeces, and clog the pores of a body-worn pad, reducing absorbency (Le Lievre, 2002).
- Potential irritants, such as deodorants, skin products with alcohol and fragrance, and disinfectants/antiseptics in washing water (Norton, 2006; Gray et al, 2002b).
moist toilet tissues (not baby wipes) or moist cotton wool, or washed and patted dry. Rubbing can cause trauma, leading to secondary infection (Norton, 2006; Le Lievre, 2002). Products that are appropriate for the management of perianal skin and those that should be avoided are listed in Boxes 1 and 2.

Aids/appliances for management/collection of loose stools

Pads

The occlusion of the skin and FI by a pad can raise the pH while not concealing faecal odour. Although absorbing the liquid component of faeces, the solid matter remains in contact with the skin, so pads should be changed as soon as possible after faecal contamination (Le Lievre, 2002).

Although the use of expensive, highly absorbent pads is not recommended for FI, the use of pads with a super-absorbent polymer does allow urine (and the liquid in diarrhoea) to be absorbed – thus separating urine and faeces (Le Lievre, 2000). However, faecal matter will clog pores in the pad lining, reducing absorbency. It is important that patients with chronic diarrhoea consult a continence adviser about products that could best meet their needs.

Faecal collectors

Faecal collectors are 500ml and 1,000ml capacity drainable pouches that attach to the perineum with a flexible, foam-backed skin barrier and are available on prescription. For example, the InCare drainable faecal collector produced by Hollister.

FIG 1. ANAL PLUGS

They are designed for use with patients who are immobile or confined to bed, as undue movement may cause leakage. They are not easy to apply but can remain in place for 2–3 days if leakage does not occur. A drainage bag can be attached to collect liquid stool (Norton, 2006; Le Lievre, 2002).

Anal plugs

These are small foam appliances, which, before insertion, resemble a suppository, with a tape for removal (Fig 1). For example, the Peristeen Anal Plug produced by Coloplast. When inserted past the anal canal into the rectum, they expand into a cone shape and can remain in place for up to 12 hours. Patients have suggested that they are uncomfortable (Norton, 2006) and loose stools may seep past the plug but they provide another option. They can be considered for chronic diarrhoea when other interventions have failed (Herbert, 2008).

Faecal management systems

Flexi-Seal FMS produced by Convatec is a system specifically designed to collect liquid/semi-liquid stool from patients who are confined to bed (Fig 2). It consists of a low-pressure rectal balloon attached to a silicone catheter, draining into a collection bag. Recent clinical evaluation of 42 patients has been positive (Padmanabhan et al, 2007).

Conclusion

Diarrhoea is a symptom of many conditions. Bowel control is more likely to be lost if stools are loose, particularly where there is sphincter weakness or raised pressure within the bowel. Once in contact with the skin – and particularly if urine is also present and/or the individual is debilitated – there is a danger of skin breakdown.