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Continence Associated Dermatitis in Community-Dwelling Individuals with Fecal Incontinence

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Abstract

Purpose—To describe the occurrence and severity of incontinence associated dermatitis among community-dwelling individuals with fecal incontinence

Design—Descriptive and comparative secondary data analysis

Subjects and Setting—One hundred eighty nine community-dwelling individuals with fecal incontinence who participated in a study comparing the effects of dietary fiber on fecal incontinence

Methods—A survey on the use of absorbent products that contained questions about subjects' history of skin damage was administered at the start of the study

Results—Incontinence associated dermatitis occurred in 52.5% of the community-living individuals with fecal incontinence. The severity of incontinence associated dermatitis was mostly mild to moderate and occurred periodically. Redness without broken skin was the most common manifestation (68%). Most individuals (95%) reported the location of skin damage to be the anal/rectal area. Those with double incontinence also reported dermatitis around the vagina or penis. Individuals with a greater severity of fecal incontinence had a greater severity of incontinence associated dermatitis ($r = .27, p = .000$). Both the frequency of incontinence ($r = .23, p < .002$) and the amount of feces leaked ($r = .23, p < .002$) had a significant correlation with incontinence associated dermatitis severity. There were no significant differences in the occurrence or severity of incontinence associated dermatitis by sex, age, or presence of double incontinence.

Conclusion—A high percentage of individuals in the community with fecal incontinence suffer from incontinence associated dermatitis at times. This population may benefit from consultation with a WOC nurse about prevention and management of incontinence associated dermatitis.

Keywords

dermatitis; fecal incontinence; skin

Introduction

Studies have shown that fecal incontinence is a major risk factor for inflammation of the skin in the perineal area, now referred to as incontinence associated dermatitis (IAD).¹ Incontinence associated dermatitis presents as red and possibly swollen or denuded areas of skin that can cause discomfort or pain. It is also thought to place individuals at a higher risk

for developing pressure ulcers.² Studies on the epidemiology of IAD from fecal incontinence have been conducted in hospital and nursing home settings. Junkin and Seleko³ reported that the prevalence of IAD in hospitalized patients with fecal incontinence was 20%; the incidence of IAD among ICU patients is as high as 50%.^{4,5}

A review of the literature identified no studies focusing on the epidemiology of IAD in community-living people. In a recent systematic review of population studies, the prevalence of fecal incontinence was approximately 10% in community-living individuals.⁶ Clinical experience and studies conducted in hospitals and nursing homes support an association between fecal incontinence and incontinence associated dermatitis. Therefore, community-living individuals with fecal incontinence are likely to be at risk for IAD as well. Information about the epidemiology of IAD in community-dwelling individuals is important to assess and plan for their care and provision of health services for its prevention and treatment. The purpose of this study was to describe the occurrence of IAD among community-living individuals with fecal incontinence.

Methods

This study used a descriptive and comparative design. It is a secondary analysis of data collected as part of a parent study comparing the effects of three dietary fibers and a placebo on fecal incontinence.

The sources of data used for this study included a survey on the use of absorbent products that was administered at the start of the parent study.⁷ This survey included questions asking about a history of skin damage. It contained three demographic questions about age, sex and race, three questions about fecal incontinence severity, and four questions about the occurrence and characteristics of incontinence associated dermatitis. The survey was reviewed for face and content validity by two expert certified wound ostomy and continence (WOC) nurses with more than 15 years of WOC nursing experience. Data collectors explained the purpose of the survey to the participants and were available to answer questions. The study was approved by the University of Minnesota Institutional Review Board.

Data Analysis

Data were coded and entered into Statistical Package for Social Sciences software (SPSS v. 18, Chicago, IL). Frequency distributions were produced to obtain information about sample characteristics, to test assumptions for statistical tests, and to summarize categorical data. A chi-square test of association was calculated to determine associations between categorical data. Means and standard deviations or medians and ranges were used to describe interval data. A score for incontinence associated dermatitis severity was calculated based on responses to the questions about incontinence associated dermatitis characteristics: extent of skin damage (redness without broken skin = 1, some broken or open skin areas = 2, rash = 3, bleeding = 4) $\times$ frequency of occurrence of skin damage. The score for fecal incontinence severity was calculated based on responses to three survey questions that inquired the usual frequency $\times$ amount $\times$ consistency of stool leaked. An average of the values assigned to the items was used when calculating the fecal incontinence severity score among participants who checked more than one of the response items for a given item. A higher score indicated greater severity of both IAD and fecal incontinence. The distributions of the IAD severity score and the fecal incontinence severity score were not normal; therefore, a Mann-Whitney *U* test with a significance level of .05 was used to detect significant group differences and correlations were assessed with a Spearman's rho. Scatterplots were used to check the linearity of associations.

Results

Data from 189 subjects who completed the parent study were included in this study. All participants lived in the community and had fecal incontinence (66%), or double urinary and fecal incontinence (34%). The sample was 77% female; the mean age of participants was 58 ± 14 years (Mean $\pm$ SD). For purposes of comparison, participants were grouped into 2 categories: those 65 years and older (34% of participants) were categorized as older adults, and those who were less than 65 years (66% of participants) who were categorized as younger adults.

Slightly more than half (52.5%) of participants reported a history of skin damage. Of the participants who did experience skin damage, the median severity was 4 (range 1-16), indicating mild to moderate severity. The severity of fecal incontinence ranged from 1 to 27 with a median score of 4, indicating that the severity of fecal incontinence ranged between mild to moderate as well.

Most community-living individuals with fecal incontinence reported periodic skin problems. Figure 1 shows the proportion of participants who reported that they never, seldom, sometimes, often or always experienced incontinence associated skin problems. Few participants (4%) reported that they always experience skin problems, while nearly one-quarter (24.4%) reported that they experience skin problems sometimes.

Figure 2 shows the percentages of participants with various manifestations of IAD. Redness without broken skin was the most common form of IAD, reported by more than two thirds (68%) of individuals who experienced skin problems from fecal incontinence. Almost one fourth (23%) of participants reported some broken or open areas of skin. The vast majority of participants (95%) reported that the location of their skin problems from fecal incontinence was the anal/rectal area. A few experienced skin breakdown in the vaginal area (4%), between the thighs (2%) or on skin in contact with incontinence pads (2%).

Individuals with greater severity of incontinence had a significantly greater severity of IAD ($r = .27, p = .000$). Both the frequency of incontinence ($r = .23, p = .002$) and the amount of feces leaked ($r = .23, p = .002$) were significantly related to IAD severity. Individuals with more frequent incontinence or who leaked a greater amount of stool had more severe IAD. However, the correlations between these variables were weak. There was no significant association between the consistency of feces leaked and the severity of IAD.

There were no significant differences in the occurrence or manifestations of IAD based on gender, age or the type of incontinence (fecal only or both fecal and urinary). Approximately half of each group had IAD. The self-reported manifestations of IAD were also similar in men and women and younger and older adults (Table 1).

Severity scores of subjects with self-reported IAD did not differ significantly based on sex, age or presence of double incontinence. The median IAD severity score in men was 2 (range 1 to 16) and women was 4 (range=1-16), $p = .46$. In younger adults, the median score was 3 (range=1-16), while it was 6 (range=1-16) in older adults, $p = .57$. In those with fecal incontinence only the median = 3 (range=1-16) compared to a median of 4 (range=1-16) in those with double incontinence, $p = .35$. Individuals with double incontinence reported that IAD occurred in 2 main locations: in the rectal/anal area and around the vagina or penis.

Discussion

This study provides some of the first descriptive information about the occurrence, characteristics, and severity of IAD in community-living individuals with fecal or double

fecal and urinary incontinence. Approximately half of individuals with fecal incontinence reported a history of IAD symptoms. Results support the findings of previous studies that have shown that fecal incontinence is associated with a greater risk for skin breakdown.^{2-5,8,9}

The association between fecal incontinence severity and the severity of IAD was weak, suggesting that any fecal incontinence increases the risk for dermatitis. The specific characteristics of fecal incontinence severity that were significantly related to IAD severity were the amount of stool leaked and the frequency of incontinence. Schnelle and colleagues² and Bliss and associates⁵ also found frequency of fecal incontinence to be predictive of IAD severity in nursing home residents and critical care patients. Repeated exposure of skin to irritants in feces is a likely mechanism for the inflammation. In this study, the consistency of stool leaked was not significantly related to IAD severity. Although liquid stool is generally thought to increase risk of incontinence associated dermatitis,¹ there are no reports to our knowledge comparing the effects of types of stool consistency on IAD. Our findings suggest that any type of stool consistency poses a risk for IAD. Bliss and colleagues¹⁰ reported a significant association between fecal incontinence frequency and liquid stool consistency. While, IAD was not examined in the Bliss study¹⁰, increased frequency of exposing skin to irritating feces rather than loose/liquid stool consistency may account for the effect of incontinence associated skin damage.

The overall severity of IAD was mild to moderate for most individuals in this study, which is consistent with the findings of previous studies in hospitals as well as nursing homes.^{2,3,5,11} The most common location for IAD was the the rectal/anal area; this findings is similar to the area most reported to be affected (buttocks/anal area) in nursing home residents.¹² We are the first to describe that many individuals with double incontinence have IAD in two locations. It has been suggested that urine increases skin pH which promotes bacterial and enzymatic activity and may lead to over hydration of skin making it more susceptible to damage.^{11,12} The findings that IAD did not differ between men and women supports similar findings in nursing home residents.⁹

Limitations

There are limitations to this study. When responding to surveys, individuals may not recall information with complete accuracy or may answer questions in a manner that they feel is acceptable. Since all participants had fecal incontinence, we are unable to comment on the effect of urinary incontinence only on IAD.

This study inquired about the occurrence of IAD in the individual's recent history, possibly resulting in a higher prevalence than other studies that may have inquired about incontinence associated dermatitis based on just one day. Since the severity of IAD was based on subject self-report and not inspection of the skin, it is possible that it was over or under estimated. Additional testing of the validity and reliability of the questions using would strengthen the questionnaire.

Conclusions

Community-living individuals with fecal incontinence develop IAD. This finding shows an opportunity for WOC nurse practice in the clinic, home or community setting. When caring for community-living patients with fecal or double incontinence, the WOC nurse is advised to inquire about IAD. Individuals in the community may not have the knowledge to prevent and care for IAD. Unlike hospital patients or nursing home residents who have assistance or resources for care, community-individuals are self-reliant. Educating incontinent individuals about the risk of IAD and methods of prevention may help to decrease the prevalence. The

frequency of incontinence and amount of feces leaked were associated with the severity of IAD and it is important for the WOC nurse to inquire about these characteristics of fecal incontinence and to plan interventions accordingly. Further studies should be conducted to address effective interventions for preventing and healing IAD in community-dwelling individuals with incontinence.

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Key Points

- Approximately half (52.5%) of community-living individuals with fecal incontinence report a history of perineal skin damage.
- IAD severity was greater when the frequency and amount of stool leaked was greater.
- WOC nurses are recommended to educate community-living individuals with incontinence about the risk of IAD and methods of prevention.

Figure 1. Frequency of incontinence associated dermatitis. This figure shows the percentage of community-living individuals with fecal incontinence who have IAD

Figure 2.
Clinical manifestations of IAD.

Table 1
Manifestations of Incontinence Associated Dermatitis in Community-Living Individuals by Sex, Age and Presence of Double Incontinence

%	Men	Women	p value	Young	Old	p value	DI	FI only	p value
IAD *	52	53	.98	50	57	.36	60	48	.12
Redness	33	38	.52	36	38	.75	47	32	.06
Broken skin	7	14	.21	14	10	.48	16	11	.39
Rash	16	19	.65	17	22	.46	24	16	.19
Bleeding	7	10	.59	9	10	.75	10	8	.67

* Incontinence Associated Dermatitis