

Letters

CORN FLAKES IS THE CURE

Editor,

We report a case of vitamin C deficiency, otherwise known as scurvy, presenting with cutaneous findings. Vitamin C is vital for skin health and a deficiency leads to bleeding gums, poor wound healing, thickening of the stratum corneum and subcutaneous bleeding.¹ In severe deficiency there is a risk of haemarthrosis, subperiosteal haemorrhage and visceral bleeding, therefore, scurvy is a diagnosis not to be missed.¹ Vitamin C improves skin hydration and also has a role in reducing free radical formation triggered by ultraviolet ray exposure to the skin. This helps to reduce premature skin ageing and the occurrence of cutaneous squamous cell carcinoma.² Furthermore, reduction in free radicals helps to reduce the risk of atherosclerosis by preventing oxidation of low density lipoproteins.³ Scurvy can be confused with vasculitis or a coagulopathy, leading to unnecessary investigations and a delay in treatment. It is important to note the risk factors and clinical features to ensure an early diagnosis.

A 48-year old unemployed man presented to dermatology outpatients with a one year history of a recurring rash suspected to be cutaneous vasculitis. Curiously, our patient



Figure 1 Perifollicular haemorrhage and corkscrew and swan neck hairs

reported improvement in his skin changes after a spell of eating solely Kellogg's Crunchy Nut Cornflakes^a on holiday. The cereal contains 111mg ascorbic acid per 100g of cereal, amounting to 83% of the recommended daily allowance.⁴ Our patient described his rash reappearing a few months after he returned home. The patient had a history of depression, anorexia and alcohol dependence. His medication included

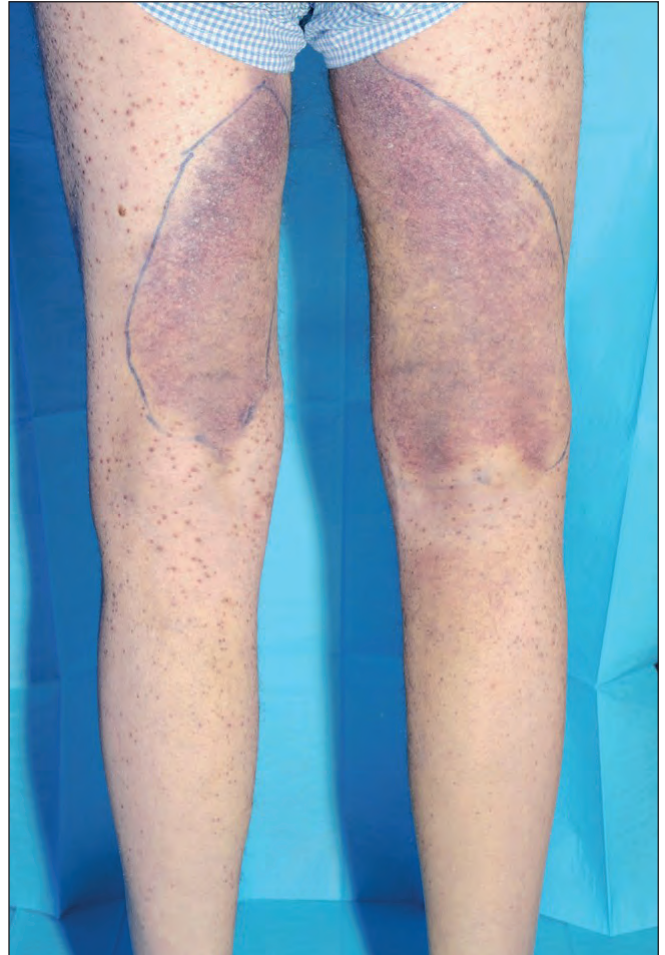


Figure 2 Ecchymoses and purpura on posterior thighs

citalopram. Examination findings included perifollicular haemorrhages, corkscrew and swan neck hairs over his arms and legs and purpura over his thighs. (Figures 1 and 2). Investigations revealed a vitamin C level of 3.2umol/l (normal range > 32umol/l), negative anti-nuclear antibodies (ANA), negative anti-neutrophil cytoplasmic antibodies (ANCA) and normal complement levels. The patient had concurrent normocytic anaemia (haemoglobin 10.8 g/dl, MCV 91 fl). Haematinics were normal. The patient was commenced on oral ascorbic acid therapy with resolution of his skin eruption within two weeks.

Vitamin C is important for collagen metabolism, therefore, a deficiency leads to degeneration of connective tissue and vasculature, hence the clinical findings of scurvy.⁵ Once treated, bruising and perifollicular haemorrhages usually resolve within two weeks, whilst corkscrew hairs take up to four weeks to normalise.⁵ The diagnosis of scurvy has been

known since ancient times, however, in 1747 Sir James Lind was the first to recognise intake of citrus fruit as prevention of the condition.⁵ It is important to note that vitamin C levels in peeled and cut fruits stored at 5°C decreases up to 25%.⁶ Scurvy is often incorrectly thought to be eradicated from developed countries, however, the prevalence of scurvy in developed countries is as much as 26%.⁷ Our patient suffered psychiatric illness, which is a reported association of scurvy. Other associations include social isolation, drug and alcohol abuse, fad diets and disorders of malabsorption.⁷

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COMMUNICATING RESEARCH FINDINGS TO PATIENTS:

Comparison of readability of Patient Lay Summaries written by eight clinical disciplines of the Cystic Fibrosis (CF) Multidisciplinary Team (MDT)

Editor,

Communication of research findings to lay people including patients is vitally important. “No research about me without me” is now becoming a widely used phrase¹ and we should be doing our best to involve patients and the public in all aspects of our research from design, execution of studies through to publication and dissemination. Many journals now encourage or request lay summaries as part of the publishing process. New digital tools have been developed that can objectively score written text for its readability against established algorithms.² Readability metrics use formulae that can score or grade a text based on number of syllables per words, words per sentence or word familiarity.

A well-written Lay Summary with good readability scores may assist intended lay readers and service users, to better understand the content of Lay Summaries that may in turn improve their health literacy. Today, many disease states are managed by the multidisciplinary team (MDT). The cystic fibrosis multidisciplinary team (CF-MDT) forms an important component of CF patient care and consists of healthcare professionals from medicine, nursing, physiotherapy, dietetics, microbiology, pharmacy, psychology and social care. To date, there have been no studies which have compared the readability of patient-facing lay summaries of research findings prepared by these different disciplines within the CF MDT. It was therefore the aim of this study to compare the readability of lay summaries prepared for patients by the different CF MDT disciplines within their own subject area.

Lay summaries (n=104) were analysed from *CF Research News* (CFRN), which is an online e-resource hosted by the European Cystic Fibrosis Society (ECFS) (<https://www.ecfs.eu/publications/cf-research-news>). All lay summaries were freely available and in the public domain. Lay summaries conformed to a standard template of preparation. Research articles were selected under the eight discipline headings of: Basic Science, Clinical Trials, Epidemiology/Models of Care, Endocrinology, Microbiology, Nutrition, Psychosocial and Pulmonology. A total of 104 lay summaries were selected, comprising of 13 lay summaries from each discipline. Readability analyses of the Lay Summaries was performed as previously described.³

Analyses of readability scores across eight CF disciplines are shown in Table 1. The mean readability of lay summaries combining all disciplines was 41.1 (Flesch Reading Ease) and 10 (Flesch-Kincaid Grade Level). Nutrition had the highest readability when considering all readability scores, and microbiology consistently had the lowest readability. This may be attributed to microbiology using binomial names to identify taxonomic names of microorganisms. Binomial names are comprised of two parts, i.e. the genus name and the species name, which is used in its Latin form. Binomial names often consist of polysyllabic words e.g. *Actinobacillus actinomycetemcomitans* (6+9=15 syllables), an important causal bacterium of infective endocarditis,⁴ thus making microbiology text rich in polysyllabic words, leading to diminished readability.

With an increasingly complex burden of care in cystic fibrosis (CF), PwCF enter the *Attention Economy* for their attention relating to all aspects of their treatments. These include time requirements to read and understand patient information leaflets (PIL) that accompany all aspects of their care, including device inserts, antibiotics and more recently, CFTR medicines. CF multidisciplinary team (MDT) healthcare professionals should aim to communicate to the PwCF such information at a level that is understood and is commensurate with the PwCF’s level of Health Literacy. Training and other supports should be available to empower the clinical team to communicate research findings as effectively as possible to their patients, carers, family and



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Table 1: Differences in readability grades/scores between CF disciplines of lay summaries

| Readability Measure | Lay Summary | | | | | | | | | | | | | | | |
|---------------------|-------------------|------|----------------------|-----|------------------------|-----|----------------------|-----|---------------------|------|-------------------------|-----|--------------------|-----|-----------------------------|------|
| | Nutrition (n=13) | | Basic Science (n=13) | | Clinical Trials (n=13) | | Endocrinology (n=13) | | Psychosocial (n=13) | | Epidemiology/MoC (n=13) | | Pulmonology (n=13) | | Microbiology (n=13) | |
| | Mean | SD | Mean | SD | Mean | SD | Mean | SD | Mean | SD | Mean | SD | Mean | SD | Mean | SD |
| FKGL* | 10.3 ^c | 1.5 | 11.2 ^a | 1.2 | 11.3 ^b | 1.4 | 11.7 | 1.1 | 11.7 | 1.4 | 12.2 | 1.5 | 12.4 | 0.9 | 13.9 ^{a,b,c} | 2.0 |
| GFI* | 12.7 ^a | 1.5 | 14.2 | 1.3 | 13.8 | 1.6 | 13.6 | 1.6 | 13.9 | 1.8 | 14.0 | 2.0 | 14.0 | 1.2 | 16.1 ^a | 2.4 |
| SMOG* | 13.0 ^a | 1.2 | 13.6 | 1.1 | 13.5 | 1.0 | 13.5 | 1.0 | 13.6 | 1.4 | 13.7 | 1.6 | 13.6 | 1.0 | 15.1 ^a | 1.6 |
| FRE* | 47.2 ^a | 10.2 | 47.6 ^b | 8.0 | 44.3 ^c | 8.9 | 45.2 ^d | 7.4 | 43.6 ^e | 10.5 | 41.7 ^f | 9.7 | 41.1 | 7.4 | 30.5 ^{a,b,c,d,e,f} | 12.5 |
| ND-C † | | | | | | | | | | | | | | | | |
| Median | 6.7 ^a | | 7.4 ^b | | 6.5 ^{b,c,d} | | 7.2 | | 6.9 | | 7.4 | | 7.1 ^c | | 7.5 ^{a,d} | |
| IQR | 5.8, 7.2 | | 6.7, 8.2 | | 6.3, 7.1 | | 6.1, 7.6 | | 6.2, 7.9 | | 6.6, 7.6 | | 6.9, 7.3 | | 7.0, 8.0 | |

MoC, models of care; SD, standard deviation; FKGL, Flesch Kincaid grade level; GFI, Gunning Fog index; SMOG, Simple Measure of Gobbledygook; FRE, Flesch reading ease; ND-C, New Dale-Chall score

Mean or median values sharing the same superscript letters in each row were significantly different.

*P values were obtained from One way ANOVA, ($P < 0.05$ was considered significant).

†P values were obtained from Mann-Whitney U tests due to non-normal distribution, ($P < 0.05$ was considered significant).

friends, in order to maximise the benefits for the patient's health literacy and disease self-management.

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