TITLE: Psychiatric sequelae of corticosteroid use in
hematology in Australia: A qualitative study

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Abstract

Despite widespread steroid usage for treating hematological conditions, minimal attention focuses on associated psychiatric side-effects. This study examines hematology patients' experiences of high dose steroid treatment. This was undertaken by the use of a qualitative descriptive design which included convenience sampling and the inductive, cyclic, and constant comparative thematic analysis of interview transcripts. Eighteen patients participated, diagnosed with lymphoma, myeloma, leukemia, or idiopathic thrombocytopenia purpura. Four themes emerged: side effects, misattribution of cause, self-management, and fragmented information. Study results revealed that hematology patients administered steroids can experience negligible to extensive, erratic side-effects, with severe adverse repercussions. Psychological reactions to steroids are often misattributed. Patients mostly self-manage adverse effects experienced and receive only fragmented preparatory information, often not understanding steroid side effects. Nurses could provide helpful "in the moment" education for inpatients who misunderstood steroid-related adverse effects like aggressive urges. Adverse repercussions for family were occasionally evident. Education, support, and ongoing care for patients experiencing adverse steroid side-effects are inadequate. Health professionals need to develop patient- and family-centered educational resources for potential, unpredictable, and usually adverse steroid side-effects.

Keywords: hematology, patient education, psychiatry, qualitative research, side-effects, steroids,

INTRODUCTION

The sub-group of corticosteroids, glucocorticosteroids (dexamethasone and prednisolone), have been used since the late 1940s for both disease treatment and symptom management in diverse conditions (Dubovsky, Arvikar, Stern, & Axelrod, 2012). Adverse physiological and psychiatric side-effects occur and, although attention has mainly focused on the physiological, the most common psychiatric disturbances are affective symptoms with 28% experiencing mild-to-moderate and 6% experiencing severe reactions (Warrington & Bostwick 2006). Psychiatric side effects include mild insomnia, anxiety, irritability, agitation, mood lability, mania, depression, suicidality, and psychosis (Dubovsky, 2012; Fardet, Kassir, Cabane, & Flahault, 2007; Fardet, Petersen, & Nazareth, 2012; Kenna, Poon, de los Angeles, & Koran, 2011; Matsumoto, Shimizu, Kinoshita, Shimizu, & Uchitomi, 2010; Ross & Cetas, 2012). Patients with cancer can develop delirium-like effects from steroids, often in combination with complex treatment regimens, disease manifestation, and interaction of opiate medications (Dietrich, Rao, Pastorino, & Kesari, 2011). Assessment of psychiatric complications is difficult due to unpredictable, idiosyncratic manifestations of side-effects experienced (Kusljic, Manias, & Gogos, 2016), and the variable time of onset following steroid administration (hours to following cessation of therapy) (Dubovsky et al., 2012). Studies examining side-effect risk factors have yielded mixed results (Dubovsky, et al., 2012) except for the association of higher doses with an increased likelihood of adverse psychiatric events (Fardet et al., 2012; West & Kenedi, 2014). Recommended management of psychiatric side-effects include: involvement of liaison psychiatry, steroid reduction or cessation, pharmacological strategies, including antipsychotics, selective serotonin reuptake inhibitors, and mood stabilizers (Judd et al., 2014; Warrington & Bostwick, 2006; West & Kenedi, 2014;). The seven-fold increase of suicidal behavior associated with

glucocorticosteroid treatments (Fardet et al., 2012) warrants further investigation in cancer populations.

Literature review

Corticosteroids form part of many treatment protocols for hematological conditions due to oncologic actions including apoptosis (cell death) and lymphocyte reduction (Smojel, 2012), whilst ameliorating opioid induced pain (Smith & Laufer, 2014), cytotoxic chemotherapy effects (vomiting, nausea, and fatigue), and improving general well-being (Inrhaoun, Kullmann, Elghissassi, Mrabti, & Errihani, 2012). High dose corticosteroids (dexamethasone, prednisolone, methyl prednisolone) are usually indicated short term for malignancies (for several days in 2-4 weekly cycles for 6-8 cycles) (Warrington & Bostwick 2006). Patients are exposed to repeated cycles of acute effects and abrupt cessation, with withdrawal symptoms and a brief period of normality in between cycles. Symptoms usually resolve after drug cessation. While few studies examining psychiatric effects of corticosteroids in cancer populations exist, McGrath, Pun, James, and Holewa (2007) have conducted the most extensive qualitative research, investigating effects in both pediatric (McGrath, 2002; McGrath & Pitcher, 2002; McGrath & Rawson-Ruff, 2010) and adult outpatient populations (McGrath, Patton, & Leahy, 2009; McGrath & Holewa, 2010). Pediatric patients with cancer experienced considerable distress whilst on steroids, with associated emotional and behavioral changes impacting heavily on family members (McGrath, 2002; McGrath & Pitcher, 2002; McGrath & Rawson-Ruff, 2010). These were more distressing than physical side-effects (McGrath & Pitcher, 2002). The adult study included ten patients with diagnoses of myeloma or acute idiopathic thrombocytopenia purpura (ITP), who were assessed by treating hematologists as experiencing physical and emotional difficulties secondary to corticosteroid use (McGrath & Holewa, 2010). Coping strategies utilized included: recognizing that adverse effects reflected “the drug and not the person”, behavioral strategies,

antidepressants, and social supports (McGrath, Patton, & Leahy, 2009). Findings also revealed that: myeloma patients could gain pleasure from increased mobility arising from corticosteroid usage (McGrath & Holewa, 2010). Psychiatric disturbances associated with corticosteroid use were found to be directly related to drugs used rather than premorbid characteristics (McGrath, Patton, & James, 2009). Participants were reported as having received inadequate information on reasons for steroid use and their effects (McGrath & Holewa, 2010).

This study arose from McGrath and Holewa's (2010) recommendation that further qualitative exploration of steroid impacts on people from varied hematology diagnostic groups is needed. Specific understanding of the range of potential effects would enable development of strategies to prepare hematology patients for possible steroid effects.

Study aim

The aim of this study is to examine the broad range of hematology patients' psychiatric experiences when administered high dose corticosteroids during treatment.

METHODS

Design

The design of this pilot study was qualitative description with "grounded theory overtones" (Sandelowski, 2000, p. 337). In these studies researchers can use at least one technique associated with grounded theory in order to produce a descriptive summary of findings "organized in a way that best fits the data" (Sandelowski, 2000, p. 339). Grounded theory techniques (Corbin & Strauss, 2008) were used to guide the analysis including, inductive, cyclic, and constant comparative data analysis. Unlike grounded theory, theoretical sampling to enable data saturation was not used. Rather, convenience sampling was conducted.

Participants and Setting

Participants were newly diagnosed or newly relapsed hematology patients who were receiving high dose corticosteroids (prednisolone 100mg per day for 5 days, dexamethasone 40mg per day for 4 days, or pulses of 20mg weekly) as part of current treatment protocols at a major Australian public hospital, aged at least 18-years-old, and proficient in English. Exclusion criteria comprised those with cognitive, physical, and/or emotional difficulties which precluded participation, as determined by patients' hematologists. Hematologists were not asked to specifically identify patients who were experiencing problems with steroids.

Data Collection

Ethical Considerations

(Name of hospital ethics committee; approval number) approved the research. Written informed consent to interview participants and use their completed questionnaires and audiotaped interviews was obtained.

A Demographics and Medical Information Questionnaire was completed following recruitment. Open-ended telephone interviews lasting 45-60 minutes were conducted following patients' discharge from hospital after the second or third exposure to steroids. Interviewers were two psychiatry team members including the first author, experienced in managing corticosteroid effects in cancer care. Participants were invited to discuss preparation received for potential side-effects, side-effects experienced (including changes in sleep, mood, thinking, behavior, appetite, and energy), and any coping strategies used. Interviews were conducted from 2011-2015 according to availability of clinical staff time with absence of research assistant support in a developing psycho-oncology service. Staff recruiting and collecting data were not clinically involved with potential participants.

Data Analysis

Audio-recorded and transcribed interviews were initially coded, comparable codes were grouped into categories, and comparable categories grouped into themes. Coding, category, and thematic labels were created by researchers (i.e., not predetermined). Qualitative data management software (ATLAS/ti, 2013) was used. To promote trustworthiness and rigour, an inter-rater reliability strategy was integrated (Kitto et al., 2008): All interviews were initially analyzed by an experienced qualitative researcher. A second co-author read all interviews, examined the initial analysis and discussed findings until reaching agreement. Psychiatrist interviewer also categorized whether each participant's description of altered emotional states was likely to be attributable to corticosteroids, and rated these as negligible, minor, moderate, severe, or extreme.

RESULTS

Demographic, medical characteristics, and corticosteroid side-effects reported by eighteen participants (10 male, 8 female) with lymphoma (9), multiple myeloma (3), leukemia (5), and ITP (1) are in Table 1. Participants engaged in interviews lasting approximately one hour following second (P1-P17, except P2) or third (P2, P18) exposure to steroids. P2 and P18 had medical problems at the time of the originally scheduled interviews. No-one withdrew from the study before, during, or after the interview. Three of those approached declined involvement and two recruited patients died before interview. No patients reported previous histories of psychosis or bipolar affective disorder. Findings were organized into four themes: (a) side-effects, (b) misattribution of cause, (c) self-management, and (d) fragmented information. These are clarified below.

Side effects

Steroid side-effects and repercussions on daily-life ranged from negligible (6 participants) to severe. Seven experienced uncomfortable side-effects, including sleep difficulties, headaches, occasional increased energy, and/or fatigue. Three described more distressing effects

including nightmares, poor concentration, constant thoughts, depression, and/or irritability.

Two had severe adverse effects. For example, **one participant described:**

Almost feeling like you're deformed. You get out of the shower and you think you

look like a monster and then in the end I probably started acting like a monster. (P17)

He also described his distress over body image changes with excessive weight gain and puffiness, aggressiveness, work-life upheaval, increased alcohol intake, low mood, and paranoia. **Another participant said:**

The first week I had the treatment I was really sort of – I don't know, a bit shaky, aggravated, anti, sort of very short fused ... the second week - well after treatment I was the complete opposite. I was like depressed, sad, in a state of like just sopping up all the time The third week well I was the complete opposite again I went back to like being angry, being obnoxious, being very unkind, short fused again, very horrible to be around. And the last treatment I've just had was the best treatment I've had, I've actually been normal. (P18)

Symptoms were **also** sometimes described as “weird”; for example, P15 wanted to eat but not ingest food and P1 would sleep for an hour then wake suddenly with, **he said**, a “bright mind” and no tiredness.

Side-effects varied in impact. Positive effects **described by participants** included needed weight gain, reduced exacerbations of asthma and chest infections, and improved intellect, confidence, and energy. Alternately, **P7** said heightened energy elicited “cabin fever”. **P13's** change in visual acuity was (wrongly) attributed to eye puffiness and his weight gain prompted a disturbing need for larger clothes. These experiences could engender a major shift in personal integrity and trust in the body. Repercussions of patients' steroid intake on family, work, and personal lives were also regularly evident. **For example, P5 stated:**

I'm no longer that little mouse that won't squeak. ... I can't tolerate nonsense to the

point that I will, like my daughter she can be frustrating sometimes – and I will literally, I will bite her head off.

One participant said that he and his wife feared steroid effects more than his illness.

On steroids he thought that:

the world's against you so you just quit jobs, tell employers where to go and how they should do it before you leave and things like that and I'm not a nasty person by nature.

P18 stated that he and his wife established a lockable room that his wife could go to when feeling unsafe. He added that:

Normally within two to three hours after I have it (steroids) she (wife) notices that I get all this anger or it's not me that comes out.

Misattribution of cause

Etiology of reactions while receiving steroids was often speculated by participants, including:

(a) increased domesticity followed inpatient inertia; (b) chemotherapy triggered increased micturition which caused wakefulness; (c) "shorter fuse" reflected uncontrolled pain or having "had enough"; (d) increased energy reflected cancer treatment response; (e) the "nightmare" of cancer relapse or uncertain future caused anxiety, crying, poor mood, headaches, and nausea; (f) feeling uplifted followed good nursing care, and (g) hospital stimuli caused sleep difficulties or aggressive feelings, for example, one participant said:

I had a few crappy people in the room ... there was this one ... I thought, "Oh God I'm going to hit her on the head with a baseball bat". (P1)

Participants seldom reasoned that psychiatric/psychological side-effects experienced were steroid-induced. Realization sometimes emerged in interviews. One participant stated:

Until probably three days ago I had probably four or five hours sleep and before that I think I was getting a couple of hours (sleep). It must be those steroids. You go

“boom” in the morning. (P10)

Participants were more likely to attribute physical effects, including nausea, head, tummy aches, and weight gain to steroids or cancer treatment. Participants also sometimes described treatment reactions with apparent curiosity. For example, one participant stated:

One of the things that’s really happened to me is lack of energy That’s been a real battle. I’ve had to make myself go out and walk and it’s something, I was a really active person. ... [but] I got a bit high now when I think about it [on steroids] – I got quite excited in hospital a couple of times. ... I talked ... My girlfriend would say ... stop [talking]! (P7)

Those with only minor adverse side-effects often reported adaptive life coping strategies which included having a positive attitude, not taking things in life too seriously and supportive friendships. Further, aspects from participants’ pre-existing lives could be offered to explain positive attitudes since steroid intake. One participant stated:

I know I’ve got leukemia here. I’m not worried. Just normal. Because I know a few friends they got leukemia too. I don’t know what type leukemia but they still work That’s my positive thinking. (P11)

Self-management

Participants’ varied ways of dealing with side-effects included trusting the medical system, optimistically viewing treatment outcomes, following familiar routines, humor, social interactions, relaxation, music, bike-riding, and positive self-talk. One participant stated:

I just try to clear my mind, just think about positive things. Yeah, just try not to let my mind race away and that’s about all I do. Try and close my eyes and go to sleep. I don’t feel the need to be down because it’s not gonna get me where I want to be so it’s just not an option. (P12)

Individuals' specific strategies to deal with: (a) sleeplessness, included, "not fighting it" and accepting sleep medication; (b) heightened energy, included enforced self-rest, making "to do" lists and spreading chores over three days instead of two; (c) poor concentration, included writing things down; (d) distress over weight gain, by controlling appetite; (e) alcohol intake, included counselling; (f) heightened aggression, by explaining steroid effects to family and seeing a counsellor; and (g) feeling sorry for oneself by re-registering onere former painting business and seeking help from a psychiatry registrar.

Some were offered medications to ameliorate steroid side-effects. While occasional participants found medications helpful for reducing "rushing", head "buzzing", and sleep disturbance, others did not take them, possibly because of concerns about toxicity and dependency. For example, after a doctor offered temazepam to one participant, but explained that it could have side-effects, she declined because she was on enough medication already. Another participant also stated:

I was staying awake for days. I'm talking like two or three days and then you get aggravated. ... The sleeping tablets the doctors gave me are still on top of the fridge, unopened. I refuse to take them because if you got used to them, then you're dependent on them. (P18)

Fragmented information

Preparatory and/or ongoing information on corticosteroid side-effects offered by health professionals was fragmented and regularly not comprehended because of information overload or because of fears related to pre-existing beliefs about steroids. For example, on hearing that she needed steroids, one participant only remembered thinking about weight gain. She stated:

I think when I first heard steroids I remember saying to (doctor's name), "Am I going to get big and fat?" ...that's probably the only thing I could focus on – not that I've

ever been vain but I notice that going from a size 9 up to a 12 to 14 to 16 it was like
“I’m not doing anything different in my life, why am I putting on all this weight?” ...
He (doctor) said it was probably the cancer. (P12)

Nurse explanations about origins of side-effects when experienced in hospital, including aggressive feelings, were helpful. Some were unaware that medications could ameliorate sleep disturbance and one erroneously believed that pharmacological (medication) symptom management would aggravate a pre-existing condition (Graves’ disease). Other misunderstandings about steroids included needing to avoid certain foods and that swelling side-effects intensified with activity. Increased information to prepare for steroid intake and opportunities to talk with others about related experiences could assist. **One participant said:**

You’re unsure of everything, so that in turn makes you feel flat, I suppose you’d say, and worried and you know, concerned. [Interviewer: And what helps at those times?] Someone may come along and say something that might put a different light on it for you ... Usually the nurses. (P9)

Both doctors and participants **often** evidently struggled with **communicating about the effects of being steroids**. P17 said it would have helped to have been told to contact a health professional should difficult side-effects arise. He thought that all people taking steroids must have similar side-effects and just dealt with them. **He had unsuccessfully tried to inform his doctor about his difficulties, stating:**

He knew early days that I didn’t like the steroids. Every time I spoke to him you know, I’d ask him can I come off the steroids now. You know I was just desperate to get off the steroids. We probably didn’t, no we didn’t overly discuss it
Interviewer: You didn’t tell him how bad things were with your job and your family
No not at all. I didn’t tell anyone. I kept it at home.

DISCUSSION

Descriptions of hematological patients' reactions following administration of high dose steroids in this study were comparable with reports of unpredictable and varied responses to steroids for different conditions (Dubovsky et al., 2012; Warrington & Bostwick 2006). Side-effects ranged from negligible to severe, including paranoia, aggressiveness, marked sleep disturbance, and psychological disturbance related to extreme weight gain and changes in body image. Findings extend understanding of how psychiatric sequelae of steroid use in cancer treatment are experienced beyond people with myeloma and ITP (McGrath, Patton, & James, 2009), including those with lymphoma and leukemia. Our findings also revealed that steroid side-effects of heightened energy and weight gain could respectively counterbalance cancer's pain, mobility, fatigue, and weight-loss effects which could please participants. Participants seldom considered that **strange** psychological reactions experienced were attributable to steroids **and sought other explanations. On the rare occasion where the steroids were suspected of causing severe disturbance, it was rationalized as something common that must be dealt with.** Evidence of effective educational preparation to assist participants with steroid administration was scarce and few were aware that medication could alleviate some side-effects. Nurses sometimes provided valued education during inpatient stays, including explanations which helped participants to "make sense" of reactions. McGrath, Patton, and Leahy's (2009) recommendations for education to prepare patients for potential steroid side-effects remain relevant. **P**sychosocial guidelines for cancer care still do not include information on communicating with patients with cancer about steroid effects (Cancer Australia, 2014; NHS Cancer Plan, 2004). **F**urthermore, an oncology electronic patient symptom and side-effect self-report system (eRAPID) also does not enquire about steroid-induced side-effects (Absolom et al., 2016).

While improved steroid preparation strategies would likely improve illness experiences of any patient experiencing side-effects, they are imperative for those who end up

experiencing severe or extreme effects. **Family members can feel threatened and fearful of the anger and aggression exhibited by patients experiencing severe adverse effects.**

Challenges experienced by family members living with patients receiving cancer related steroid treatment were also reported by McGrath and Holewa (2010). We concur with McGrath, Patton, and James (2009) in their recommendation that a patient- and family-centered approach is needed. We also suggest that a multi-disciplinary team, including oncology, pharmacology, psychiatry, psychology, social work, pastoral care, and music therapy, needs to be involved in dealing with potential adverse repercussions of cancer related steroid use. An effective strategy would encompass:

- Health professionals' effective education of hematology patients/families about why steroids are needed, potential side-effects, management strategies, and instruction to seek psychiatry consultation-liaison or specialist psycho-oncology services if serious psychiatric sequelae occur (West & Kenedi, 2014).
- Health professionals' abilities to, (a) clarify patients/families' possible misunderstandings about steroids, and (b) identify steroid side-effects in order to provide "in the moment" education and support to those struggling to understand them.
- Provision of hard copy and online resources for patients/families further explaining steroid effects and management, and information about community supports, for example, telephone help-lines and consumer support networks.

Our findings suggest that assessment must be offered for the ongoing management of adverse steroid side-effects. They concur with those of McGrath, Patton, and James (2009) who

found that psychiatric symptoms can arise in patients with no previous psychiatric history. One patient with previous medical diagnoses of anxiety and depression had negligible side-effects (P9). One participant's history of anger management issues may have contributed to the reappearance of aggression on steroids. A significant number of participants with negligible or minor adverse effects described positive self-talk and distraction coping strategies, consistent with the findings of McGrath, Patton, and Leahy (2009).

Limitations and Future Directions

This study involved 18 patients receiving high-dose corticosteroids for hematological disorders, assessed for steroid side-effects after their second or third treatments. A longitudinal study would have provided greater insight into the temporal nature of side-effects experienced, including whether some participants initially reported as having negligible effects had delayed adverse effects following interviews. Also, only two of the 18 (11%) patients in our study experienced side-effects that could be described as severe, while 17% had moderate effects, 37% mild, and 33% negligible. While this is not surprising, given that 6% of patients on steroids experience severe, and 28% experience mild to moderate side-effects (Warrington & Boswick, 2006), the findings only offer limited insight into potential reactions patients can experience on steroids. Nonetheless, findings from our study provide insight into a broad range of reactions and experiences possible when administered steroids for cancer treatment because the participants had not been identified by hematologists as having difficulties with steroids, in contrast with the findings of McGrath, Patton, and James (2009). Based on our study findings and review of the literature, a one page information sheet was developed that attempts to give enough information without overloading or scaring patients and families (name removed for blind review, 2017) and a follow-on study to examine its usefulness is planned.

Future research could investigate the most appropriate provision of patient

information about possible steroid side-effects in oncology with feedback from patients and families, and families/friends' potential roles in supporting those on steroids. In addition, the formation of a multi-site study of severe responses to steroids focusing on the most appropriate management could be undertaken. Finally, investigation of any link between patients' reactions to steroids and pre-existing attributes, apart from serious mental illness (e.g., coping styles, personality, support networks, and degree of preparation).

CONCLUSION

Hematology patients receiving steroid treatment experience negligible to severe adverse side-effects, with repercussions on personal and family quality of life, safety, and security. Study participants were mostly unprepared for adverse psychiatric/psychological effects experienced, attributed their origin to cancer or hospitalization stressors, and experienced discomfort or distress potentially ameliorated by appropriate information provision and professional monitoring. While observant and responsive nurses provided some patients with helpful explanations of side-effects after they were experienced, patients need better preparation for potential unpredictable and bewildering side-effects experienced, with opportunities for thoughtfully anticipating side-effect management options and coping strategies if needed. Future research on the efficacy of educational interventions to assist hematology patients and their families to deal with side-effects of steroids is needed to inform psychosocial support and evidence-based practice guidelines for managing hematology patients reacting adversely to steroids.

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Contributions

Study Design: XX

Data Collection: XX

Data Analysis: YY, ZZ

Manuscript Writing: XX, YY, ZZ

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Table 1 – Please see attached document

Table 1. Participant demographic and medical characteristics and individual corticosteroid side effects

Participant	Diagnosis	Sex	Age	Previously in Counseling	Previous ¹ Depression	Previous Anxiety	Adverse Side-effects Experienced ²
1	Lymphoma	F	52	No	No	No	ME. mood changes, anger, irritability, impatience, wakefulness
2	Multiple Myeloma	M	61	Yes	No	No	ME. sleepy, dozey, very short fuse, ‘aggro’ with people, intolerant of noise; diabetes management was more challenging.
3	Lymphoma	M	47	No	No	No	ME. sleep disturbance, buzzing in head, vagueness, tangential thinking, wandering around the house a lot
4	Lymphoma	M	73	No	No	Yes (S)	NE.
5	Lymphoma	F	54	Yes	No	No	ModE. personality and mood changes, tearfulness, increased energy, unwise purchases, poor sleep, buzzing mind, distress over increased weight and body image change
6	Lymphoma	F	51	No	No	No	ModE. scary nightmares, sleep disturbance, cognitive problems, distress over puffiness of face, high energy, constant thoughts, more intolerant and aggressive
7	Lymphoma	F	66	Yes	No	Yes (M)	ModE. marked sleep disturbance, lack of concentration, short- term memory problems, depression, irritability; noted improvement in asthma and chest infections
8	Multiple	M	45	No	No	No	NE Sleep disturbance, grumpiness

	Myeloma						
9	Leukemia	F	57	Yes	Yes (M)	Yes (M)	NE. sleep disturbance, but queried if due to hospitalization
10	Leukemia	F	52	Yes	Yes (S)	Yes (S)	ME. little sleep, racing thoughts, difficulty concentrating
11	Leukemia	M	41	No	No	No	ME. sleep disturbance, nightmares about death, difficulties concentrating
12	Leukemia	F	36	No	Yes (S)	Yes (S)	NE mild sleep disturbance
13	Leukemia	M	64	No	Yes (S)	Yes (S)	NE (cf suicidal depression with first episode of illness – not revealed to doctors)
14	Lymphoma	F	62	No	No	No	NE. wakefulness (“didn’t feel bad”); welcomed increased appetite
15	Lymphoma	M	26	No	No	No	ME. sleep disturbance, frequent waking, mood changes, impaired concentration
16	Lymphoma	M	53	No	No	No	ME. sleep disturbance, a little down, impaired concentration (unable to drive)
17	Idiopathic Thrombocyto- penic Purpura	M	43	No	Yes (S)	Yes (S)	SE. Sleep disturbance, fatigue, headaches, concentration difficulties, body image disturbance from 50kg weight gain and ‘moonface’, mood disturbance, aggression, anxiety, life not worth living, paranoia, wanting to quit therapy because of steroid effects
18	Multiple Myeloma	M	47	Yes	Yes (M)	Yes (S)	SE. Major mood swings on two out of three cycles, aggression, sleep disturbance

¹ (M) = medical diagnosis; (S) = self-described; ²NE: negligible effect; ME: minor effect; ModE: moderate effect; SE: severe effect;

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