

# Supplementation with hydrocortisone on the 3<sup>rd</sup>–5<sup>th</sup> day following dexamethasone premedicated chemotherapy eliminated severe dizziness and postural hypotension

Suplementacja hydrokortyzonem od 3. do 5. dnia po chemioterapii premedykowanej deksametazonem usuwa hipotensję ortostatyczną i silne zawroty głowy

Wojciech Jeske<sup>1</sup>, Krzysztof Gawrychowski<sup>2</sup>, Waław Śmierka<sup>2</sup>

<sup>1</sup>Department of Endocrinology, Centre for Postgraduate Medical Education, Warsaw, Poland

<sup>2</sup>Department of Oncological Gynaecology, Oncological Institute M. Skłodowska-Curie, Warsaw, Poland

## Abstract

We present the case of a 60 year-old woman with a stage III fallopian tube cancer submitted to hysterectomy and bilateral salpingo-oophorectomy with partial omenectomy, followed by six courses of chemotherapy and revision surgery. After each course of chemotherapy (paclitaxel + carboplatin) preceded by premedication with dexamethasone, she suffered from side-effects, of which the most unpleasant was severe dizziness appearing on the third, fourth and fifth day following the listed combination of drugs. It was revealed that dizziness with concomitant sweating and rapid pulse, noted in the standing position, was combined with marked postural hypotension. Considering the possibility of a temporary pituitary-adrenal axis suppression caused by premedication with a very large dose of dexamethasone, during those three days she was supplemented with small doses of hydrocortisone, which caused almost complete disappearance of the mentioned symptoms. Our conclusion is that postural hypotension causing severe dizziness initially linked with chemotherapeutic drugs can be eliminated or markedly reduced by three days supplementation with hydrocortisone applied after the expected wash out of the dexamethasone.

**Key words:** dexamethasone, premedicated chemotherapy, postural hypotension

Kardiol Pol 2012; 70, 3: 273–274

## CASE REPORT

In a previously healthy 60 year-old woman, a small enlargement of the right ovary was incidentally detected on a regular control USG investigation. Blood tests, including tumour markers, were within normal limits, and on examination she did not present any suspicious symptoms. She subsequently underwent total hysterectomy and bilateral salpingo-oophorectomy with partial omenectomy. Histological diagnosis of fallopian tube cancer (10 mm nodule) stage III was established. She was referred to the Oncological Institute M. Skłodowska-Curie, in Warsaw, for six consecutive courses of standard chemotherapy (paclitaxel + carboplatin) preceded by premedication with dexamethasone. After the second course, she underwent a revision surgery for residual omenectomy and lymphadenectomy.

Following each course of chemotherapy, she suffered from side effects, including facial flushing, muscle and joint pain starting usually on the second day after chemotherapy, and dizziness which became quite severe from the third up to the fifth day, and kept her bed-ridden. Moreover, she suffered some abdominal pain, without nausea or emesis. Following the third course of chemotherapy, blood pressure (BP) was measured several times during the day. It appeared that dizziness with concomitant sweating and a more rapid pulse (in the standing position) were caused by marked postural hypotension. This hypotension could be eliminated by the administration of hydrocortisone: on the third and fourth days, 20 mg p.o. in the morning 1 h before getting up from bed and 10–20 mg at 3 p.m., and on the fifth day 10–20 mg only

### Address for correspondence:

Wojciech Jeske, MD, PhD, Department of Endocrinology, Centre for Postgraduate Medical Education, ul. Ceglowska 80, 01–809 Warszawa, Poland, tel: +48 22 569 03 52, fax: +48 22 834 31 31, e-mail: jeske.wojciech@gmail.com

Received: 08.03.2011 Accepted: 10.03.2011

Copyright © Polskie Towarzystwo Kardiologiczne

**Table 1.** Blood pressure measurements on days 2, 3, 4 and 5 following chemotherapy

Days after chemotherapy		After IV course			After V course			After VI course		
Day	Hour	Sitting	Standing	HC dose	Sitting	Standing	HC dose	Sitting	Standing	HC dose
2	15 <sup>00</sup>	120/65	120/70	(–)	118/72	126/76	(–)	115/70	120/74	(–)
3	7 <sup>00</sup>	123/60	113/75	(20 mg)	130/68	<b>75/60</b>	(20 mg)	116/73	<b>92/65</b>	(20 mg)
	9 <sup>00</sup>	128/65	128/75		124/80	118/78		126/80	118/68	
	15 <sup>00</sup>	145/68	<b>104/72</b>	(20 mg)	123/83	<b>86/52</b>	(20 mg)	126/80	<b>105/70</b>	(10 mg)
4	7 <sup>00</sup>	139/65	<b>102/73</b>	(20 mg)	113/78	<b>~60/50</b>	(20 mg)	100/60	<b>~50/?</b>	(20 mg)
	9 <sup>00</sup>	129/80	123/75		124/83	113/68		123/68	100/70	
	15 <sup>00</sup>	130/73	<b>110/72</b>	(10 mg)	132/80	<b>112/67</b>	(10 mg)	124/50	<b>100/84</b>	(20 mg)
	19 <sup>00</sup>							124/70	120/65	
5	7 <sup>30</sup>	118/70	107/60	(10 mg)	124/72	<b>80/60</b>	(20 mg)	115/70	<b>85/60</b>	(20 mg)
	9 <sup>00</sup>				130/80	110/67		108/68	100/70	
	16 <sup>00</sup>	129/76	132/65	(–)	108/65	110/80	(–)	130/68	118/60	(–)

HC — hydrocortisone

in the morning — depending on the control BP results in the sitting and standing positions. The results of BP measured in the sitting and standing positions, before and after hydrocortisone supplementation, are presented in Table 1.

## DISCUSSION

Dexamethasone used in a large dose as premedication preceding the standard dose of paclitaxel and carboplatin, has accepted anti-allergic and antiemetic effects, although the mechanism of the latter effect is unknown [1, 2]. It is generally presumed that application of a single dose of glucocorticoids does not usually cause clinically relevant disturbance of the pituitary-adrenal axis, which would demand consecutive hydrocortisone supplementation. However, our observation was that a very large dose of dexamethasone (40 mg p.o. plus 20 mg i.v.), administered on the night preceding chemotherapy, caused a temporary cortisol deficiency, which became apparent after wash-out of the dexamethasone from the body on the third, fourth and fifth day.

Postural hypotension, dizziness, and non-characteristic abdominal pain, sometimes accompanied by muscle or joint pain, are frequently reported symptoms in patients with adrenal insufficiency. In our case, dizziness and postural hypotension, initially linked with chemotherapy, could be eliminated by the administration of small doses of hydrocortisone. Such supplementation, given early in the morning (preferable 1 h before getting up from bed) and again at about 3 p.m., appeared very helpful and let the patient remain in the standing position, and perform her usual home activities. It seemed also that her abdominal discomfort and articular symptoms were milder while she was taking hydrocortisone. This observation, however, needs confirmation from a larger number of cases.

Severe, long-lasting orthostatic hypotension on day 3, day 4, and again on day 5, after a single cycle of the above-mentioned combination of chemotherapeutic agents, was reported by Vassilomenolakis et al. in a letter to the Eur J Cancer [3]. Ekholm et al. [4], who tested patients on the day after the

second course of chemotherapy, showed that paclitaxel does not impair vagally mediated heart rate responses to cardiovascular function tests, and therefore concluded that the observed decrease of BP during standing could not be associated with vagal neuropathy. The authors of both these reports, however, did not give details as to the used premedication, and they implied only that the observed symptoms were probably associated with the disturbed sympathetic control of the vascular system. It is well known that glucocorticoids are essential for normal cardiovascular function. They facilitate sympathetic neural control of circulation and contribute to the maintenance of normal arterial pressure. Their deficiency decreases the BP response to adrenergic stimulation.

The important conclusion from our observation is that dizziness and postural hypotension, appearing on the third to fifth day following premedication of chemotherapy with a large dose of dexamethasone, may be attenuated or fully relieved by small doses of hydrocortisone, subsequently making the patient's general feeling more comfortable.

Therefore, the recently proposed need for close cardio-oncological co-operation [5] could be in some cases extended to a combined onco-cardio-endocrinological team.

**Conflict of interest:** none declared

## References

- Jordan K, Kasper Ch, Schmoll H-J. Chemotherapy induced nausea and vomiting: current and new standards in the antiemetic prophylaxis and treatment. *Eur J Cancer*, 2005; 41: 199–205.
- Jakobsen J N, Herrstedt J. Prevention of chemotherapy-induced nausea and vomiting in elderly cancer patients. *Critical Rev Oncol/Hematol*, 2009; 71: 214–221.
- Vassilomenolakis M, Tsoussis S, Efremidis A. Long lasting, grade IV, orthostatic hypotension after a single cycle combination chemotherapy with paclitaxel and cisplatin. *Eur J Cancer*, 1998; 34: 1295.
- Ekholm E, Rantanen V, Antila K, Salminen E. Paclitaxel changes sympathetic control of blood pressure. *Eur J Cancer*, 1997; 33: 1419–1424.
- Albini A, Pennesi G, Donatelli F et al. Cardiotoxicity of anticancer drugs. The need for cardio-oncology and cardio-oncological prevention. *J Nat Cancer Institute*, 2010; 102: 14–25.