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SEVERE ANAPHYLAXIS CAUSED BY INTRAVENOUS PACLITAXEL

Oncology

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KEYWORDS

BACKGROUND

Anaphylaxis is an acute, severe, and potentially life-threatening allergic reaction that is caused by a variety of foreign substances. Food, venom, and medications including beta-lactam antibiotics and non-steroidal anti-inflammatory drugs are common triggers of anaphylaxis.[1,2]

Intravenous anti-cancer drugs such as platinum agents and taxanes also often induce hypersensitivity reactions[3–5] A patient with mild allergic reaction may have localized rash, itchiness, or rhinitis.[1,2]

However, severe forms of drug-induced anaphylaxis are iatrogenic critical events that demand life-supporting maneuvers[6] Therefore, severe anaphylaxis should be paid careful attention. However, few studies have focused on chemotherapy-induced severe anaphylaxis, except for case reports.[7]

Case Report

A 70-year-old male, smoker with smoking index of 550, with KPS performance score 80, with biopsy-proven squamous cell carcinoma with TTF negative and p40 positive.

The primary lesion was located in the right middle lobe with nodules in right middle and lower lobe with mediastinal and cervical lymph nodes. Extrathoracic involvement was solitary and in tonsils only. Target lesion was 4.1*3.6 cm.

According to 8th AJCC, it is staged as IVa with T4 N3 M1b. The patient was offered palliative chemotherapy consisting of carboplatin 380 (area under curve 6) infusion followed by paclitaxel 260mg ($200mg/m^{-2}$) as a 3-hourly infusion, both as 3-weekly cycles.

Premedication consisted of i.v. administered pheniramine maleate (45mg), pantaprazole (40 mg), ondansetron (8mg) and dexamethasone (4 mg) and was given 30 min prior to chemotherapy infusion.

First cycle of chemotherapy was given on 01/07/23 and was uneventful. Second cycle was planned on 22/07/2023.

Shortly after the start of the paclitaxel infusion, the patient complained of acute breathlessness, chest pain, severe itching all over body.

He developed general distress, with development of edema over lips, neck and face followed by loss of conciousness. Patient was given i.v. dexamethasone, pheniramine maleate, and i.v. adrenaline, i.v. fluids immediately.

Patient immediately intubated, ventilated through AMBU. BP was not recordable, adrenaline i.v. given once again and shifted to icu and put on ventilator and on adrenaline and nor adrenaline infusion through central line.

His BP in icu was 70/48 mmHg, pulse rate of 152/min, with oxygen requirement of 40%. ABG suggestive of severe metabolic acidosis with Ph 7.15, Bicarb 8.4, lactate 5.1.

Initially Adrenaline requirement were 0.3mg/hour for 20 hours, 0.2mg for 9 hours and 0.1 mg for 12 hours with than stopped.

Nor adrenaline was given in dose of 10.0 mcg per hour for 17 hours. Patient successfully extubated after 22 hours, kept under observation for 24 hours and discharged.

Now patient started on Docetaxel and doing well.

Table1 : Relation of ABG parameters with time of onset of adverse events

Time of onset	1 hour	6hour	18hours	24 hours	36 hours
pH	7.15	7.17	7.36	7.38	7.44
PCO_2(mmHg)	22.6	41.5	24.3	23.9	24.8
pO_2(mmHg)	124.2	77	95.5	90.5	88.2
HCO3(meq/L)	8.4	14.6	15.3	15.1	17.2
Lactate (mmol/L)	5.1	4.6	2.4	1.2	1.1

DISCUSSION

In this report, we describe the life threatening adverse event after paclitaxel infusion, despite administration of a widely accepted regimen of premedication.

Mostly first to third administration of taxanes caused severe anaphylaxis whereas fourth-or latter-infusion did not, and most of these taxanes-induced severe anaphylaxes occurred within 5 min.

In our case it occurred in second cycle and within 2-3 minutes of starting of infusion. These findings consistent with those of previous studies regarding hypersensitivity of any grade.[8]

Paclitaxel re-administration may be considered once mild symptoms subside.[8] However, paclitaxel re-administration after severe anaphylaxis seems too risky.[4,7], Polyethylated castor oil solvent of paclitaxel is known to directly cause hypersensitivity via the non-IgE mechanism[5]. By contrast, nab-paclitaxel is believed to rarely cause hypersensitivity.[5]

CONCLUSION

Paclitaxel-associated life threatening adverse event in the patient illustrates the need for continuous awareness and questions the importance of routine i.v. premedication for paclitaxel administration and countinous monitoring during infusion.

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