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A Case Report on Prednisolone Induced Facial Puffiness and Weight Gain

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ABSTRACT

Prednisolone is a commonly used catabolic steroid that binds to cytoplasmic receptors and inhibits DNA synthesis. Prednisolone is used as an anti-inflammatory; majorly it causes Cushing Syndrome, edema, muscle weakness, and weight gain.

A 6years pediatric female patient was consulted in the pediatric department with chief complaints of swelling in the cheek and weight gain for 1 month. Past medical history includes, she was taking treatment for nephrotic syndrome, which includes Tab. prednisolone 5 mg, 30 mg/day 3-0-3 BD. After 15 days patient had complaints of the swelling of the cheeks and after 4 weeks she had complaints of weight gain [15 kg - 19 kg] on the administration of Tab. Prednisolone is the reason for the hospital admission. Better vigilance is necessary for a safe and effective treatment for each patient. In-order to prevent serious ADR of this drug, close monitoring during the treatment course, and careful management of all patients who receive this medication because corticosteroids cause toxic effects like fluid retention, muscle weakness, etc. If close monitoring is not provided during the treatment course, it can cause permanent disability, morbidity, mortality.

Keywords: Prednisolone, Facial puffiness, adverse drug reaction, Weight gain.

INTRODUCTION

Prednisolone is a commonly used catabolic steroid, which binds to cytoplasmic receptors and prevents DNA synthesis. Prednisolone is a 1, 2-dehydrocortisol which is a highly potent synthetic glucocorticosteroid that has minimal mineralocorticoid activity. [1] Prednisolone is used as an anti-inflammatory, which indicated in the treatment of various conditions, including congenital adrenal hyperplasia, psoriatic arthritis, systemic lupus erythematosus, bullous dermatitis herpetiformis, seasonal or perennial allergic rhinitis, allergic corneal marginal ulcers, symptomatic sarcoidosis, idiopathic thrombocytopenic purpura in adults, leukemias, and lymphomas in adults, and ulcerative colitis. Glucocorticoids are adrenocortical steroids that cause profound, and varied metabolic effects. Besides, they modify the body's immune responses to diverse stimuli. [2] Majorly it causes Cushing Syndrome, peptic ulceration, edema, hypokalemia, muscle weakness, behavioral changes. [3]

This is the case report of 6 years of a pediatric female patient who consulted the pediatric department with Nephrotic syndrome which includes Tab. prednisolone. The overall incidence rate is 5-7% in hospitalized patients. The majority of the medicine may induce skin reactions, and certain drug classes, such as non-steroidal anti-inflammatory drugs (NSAIDs), antibiotics, and anti-epileptic have drug eruption rates approaching 1–5%. Prednisolone is obtainable in the form of oral and parental forms (IM). It gets absorbed readily by the gastrointestinal tract, peak plasma concentration is 1-2 hours after administration. 90% of the drug

shows high protein binding. The biological half-life of prednisolone is 2-3 hours, with 65% of it will be eliminated in the urine either in freeform or glycoconjugate [4]

CASE REPORT

A 6years pediatric female patient was consulted in the pediatric department with chief complaints of swelling in the cheek and weight gain for 1 month. Past medical history includes, she was taking treatment for Nephrotic syndrome which includes Tab. prednisolone 5 mg, 30 mg/day 3-0-3 BD. Again patient was consulted in the pediatric department with complaints of the swelling of cheeks for 15 days, and after 4 weeks. she had complaints of weight gain [15 kg-19 kg] after administration of Tab. Prednisolone, On general examination, the patient was conscious and coherent. On physical examination, Pulse rate-90bpm. On systemic examination, CVS-S1S2+, RR-20 CPM, RS-BLAE+, edema at both cheeks with 4mm depth. and weight gain 3kgs (before 15kgs, after19kgs). On laboratory examination shows Hb: 10gm/dl, BT:2.3sec, CT:4.1sec,T.bilurubin: 0.5mg/dl, direct bilirubin: 0.1mg/dl, Indirect bilirubin: 0.4mg/dl, blood urea: 23mg/dl, S.Cr:0.3mg/dl, ESR: 28mm/hr. The treatment was given as follows i.e., Inj. ceftriaxone 500mg IV BD, [5 days] Tab.Rantac 150 mg ½ tab p/o BD, Tab.B.complex 67 mg p/o OD Based on the above information here we have suspected it as possible ADR (facial puffiness (edema), and Weight gain) shown in Figure1. The patient was referred to the pediatric department to confirm the ADR. We compared the analysis of drugs prescribed; prednisolone pharmacology and literature support the occurrence of edema. To confirm the relationship between the Disease and drug, we have also done a Urine test. 3 days of urine test reports are analyzed, Values of urine test reports are Albumin- Nil, Sugar- Nil, urea-23 mg/dl (15-45mgs/dl). Creatinine-0.3mgs/dl (0.5-1.5mgs/dl), T.Bilurubine-0.5mgs/dl (up to 1.0 mg/dl), Direct Bilirubin-0.1mgs/dl (up to 0.2 mg/dl), In Direct bilirubin-0.4 mg /dl (up to 0.2- 0.8 mg /dl). All vitals are Normal. i.e., Drug dose was reduced and prescribed Tab. Prednisolone 5mg p/o 4-0-0 Alternative days and syp.Gelusil 5 ml p/o when Tablet is taken.

DISCUSSION

Edema may be defined as a clinically detectable increase in interstitial fluid volume. Edema will occur when excess sodium is reserved either as a primary defect in renal sodium excretion or as a response to a decrease in the effective circulating volume despite an already normal or expanded Extra Cellular Fluid volume [5]. Edema can be explained in two ways localized edema and generalized edema, localized edema occurs due to venous or lymphatic obstruction, allergic reactions, and superior vena cava obstruction will cause localized facial edema, generalized edema occurs due to soft tissue swelling of most of all regions of the body [6]. Normally fluid will exist into the interstitial from the arteriolar end of the microcirculation is nearly inflow of vascular end.

Primarily sodium and water retention will take place in renal finally there is an occurrence of edema. [7] Edema may occur as a result of sodium retention which leads to water accumulation. Patients with CKD May additionally have hypoalbuminemia together with renal protein loss, and this may lead to osmotic extravasation of fluid and its retention in the tissue. By end-stage renal disease, pulmonary and peripheral edema is best controlled with dialysis but diuretics can be useful. The daily fluid intake should be restricted to between one and three liters, depending upon the volume of urine produced by the patient (if any). It is important to note that the fluid allowance must include fluids, ingested in any form, including sauces, medicines, and fruits ingested in any form, including sauces, medicines, and fruits, in addition to drinks.

The fluids restriction is very difficult to maintain. Sucking ice cubes may result in an unpleasant dry mouth, but the patient should be encouraged not to swallow the melted water. [8] Here Drug-induced edema can be divided into three types by the mechanism as follows, sodium overload, renal dysfunction, and hyperpermeability of blood vessels. In the category of sodium overload, edema is induced by considerable fluid replacement and antibiotics which contain large amounts of sodium and sodium bicarbonate. In the category of renal dysfunction, NSAIDs, antihypertensive drugs, anticancer drugs, and so on may induce edema in patients with renal dysfunction. In the category of hyperpermeability of the blood vessel, edema is induced by calcium antagonist, insulin.

In our case Tab. Prednisolone was given to treat Nephrotic syndrome, but common adverse drug reactions like peptic ulceration, muscle weakness, insomnia, dry skin weight gain, fluid retention. [9] In our case patient had complaints of swelling at both cheeks this condition is called facial puffiness and weight gain. In our case patient had previously used Tab. Prednisolone and developed severe edema at both cheeks.

During the treatment course as a clinical pharmacist we have identified adverse drug reaction as follows, the patient was under the medication with Tab. Prednisolone is based upon the literature reviews, and that this condition is due to the drug Prednisolone and performed causality assessment, severity, preventability, predictability. After the identification, we have reduced the drug dose Tab, prednisolone 5mg p/o 3-0-3 to 5mg p/o 4-0-0 Alternative days, and syp. Gelusil 5 ml p/o when Tablet is taken provided appropriate treatment.

Causality assessment To evaluate the relationship between the drug and reaction, we have performed causality assessment by using scales like WHO causality assessment scale, Naranjo's scale, and Karsch lasagna scale and analysis of observed ADR (Table 1) and (Table 2)

Table1: Causality assessment of suspected ADR

ADR SCALES	WHO-UMC	NARANJO'S	NARANJO'S KARSCH and LASAGNA
ASSESSMENT	Possible	Possible	Possible

Table 2: Analysis of observed ADR

1	Severity assessment	Moderate level-4(b)
2	Preventability	Definitely Preventable
3	Preventability	Type-A

CONCLUSION

We conclude that better vigilance is necessary for the operation of safe and effective treatment for each patient. To prevent serious adverse drug reactions of this drug, close monitoring during the treatment course, creating awareness, recognition of the problem, and careful management of all patients who receive this medication is essential, because the use of corticosteroids commonly causes toxic effects like abdominal tenderness, fluid retention, insomnia, muscle weakness, etc. if not providing close monitoring during the treatment course, which can cause permanent disability, morbidity, mortality.

REFERENCES

1. Tripathi KD. Essentials of medical pharmacology, Jaypee the health science publishers.2013 :(7):295-6.
2. Sharma HL, Sharma KK. Principles of pharmacology, Paramedic Publishers.2013 :(2):630.

3. Tara Shanbhag. Basic pharmacology and pre manual undergraduates, Elsiever publishers.2015 :(4):334-7.
4. Rang and Dales, Textbook of Pharmacology, Elsevier publishers. 2017 ;(7):409.
5. Joseph T. DiproA textbook of Pharmacotherapy; a pathophysiologic approach. 2012 :(9):856.
6. Harrisons. Principles of internal medicine, Mc Graw hill. 2013 :(1):150.
7. Robbins, Basic pathology, Elsevier publisher's.2005 :(7):80.
8. Roger walker, Cate Whittlesea, Clinical pharmacy and therapeutics, Elsevier publishers.2015 :(5):286.
9. Brain R. Walker, Davidson's Principles and practice of medicine, Elsevier Publishers. 2014 :(22):478.

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