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Prednisolone Induced Psychosis in an Adolescent Female with Nephrotic Syndrome- A Case Report

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I. Introduction

Over the last 50 years, exogenous corticosteroidshave been used in the treatment of variousmedical illnesses. A number of adverse reactionshave been established, including disturbanceof mental state.

The average incidence of diagnosable psychiatric disorders due to steroid therapy is reported to be about 6%, but morepatients suffer from mild symptoms which do not fulfill any diagnosis. Affective reactions such as depression, mania and hypomania are the most common side effects, along with psychosis, anxiety and delirium.

There is no clear mechanism model for corticosteroidinduced psychiatric disorder, but it appears to be dose-dependent. The incidence seems to be even higher at megadoses of methylprednisone.

Although it is a well-known complication inadulthood, literature about steroid-inducedpsychotic disorder in children and adolescentis insufficient.

II. Case Report

A previously healthy 12-year-old girl wasreferred to our pediatric nephrology departmentwith a two-month history of nephrotic syndrome.She had received oral prednisone in severaldoses ranging from 16 mg/day to 48 mg/dayduring the past two months The histopathologicalchanges were considered as focal segmentalglomerulosclerosis. At this point, highdosemethylprednisonewas started onan outpatient basisAfter one month she developed some behavioral changessuch as fears, anxiety and sleep disturbancesat home. Her parents took her to the pediatricemergency department on the second day ofher complaints.

On admission, she had visualhallucinations and persecutory delusions. Sheclaimed that her parents are not her real parents they have been replaced by someone else. She had fears of being kidnapped andmurdered.She had exhibited bizarre behaviour such as praying differently and talking toherself. For the last two days, she experiencedinsomnia. She was oriented, aware of thetime, place and the people around her. Hermother reported that she had never exhibitedpsychological problems in the past, and therewas no family history of mental disorders.

At the time of hospitalization, her vital signs,and physical andneurological examinationfindings were completely normal. Her weightwas 38.5 kg (3-10%), height 137 cm (<3%) andblood pressure 120/70 mmHg. She was takingmethylprednisone at more than 1 mg/kg per dayat this presentation. All laboratory tests includingcomplete blood count, coagulation tests, blood ureanitrogen (BUN), serum creatinine, electrolytes,liver enzymes, blood gases, and C-reactive proteinliver enzymes, blood gases, and C-reactive protein(CRP) levels were in normal limits except forhypoalbuminemia (1.6 g/dl) with proteinuria(1.8 g/m^2/day). Her cranial magnetic resonanceimaging (MRI) and electroencephalography (EEG)were also normal.

We considered the possibilitiesof delirium,drug intoxication and steroid-induced psychoticdisorder in the differential diagnosis. Patientswith delirium have impaired consciousness,fluctuations in their symptoms, and theirEEG shows a generalized slowing activity.In drug intoxication patients have perceptualdisturbances and intact reality testing.Ourpatient had impaired reality testing, normalcognitive functions, normal EEG, and hersymptoms had begun after the initiation ofmega doses of steroid. We thus diagnosed heras having steroid-induced psychotic disorderaccording to DSM-5 criteria.A regimeof olanzapine 5 mg was initiated.seven days after starting the treatment, hersymptoms dramatically improved and MPwere continued, to be given every otherday for two weeks. Three weeks later, she hadno psychiatric signs or symptoms. The only sideeffect was mild sedation at bedtime. Becauseher recent psychotic reaction had became arisk factor for further steroid therapy, wedecided to continue with olanzapine 5mg as aprophylaxis. At the last visit, six months afterbeginning olanzapine treatment, she remainedfree of psychiatric symptoms, despite the useof prednisone, and she was tolerating themedication well.

III. Discussion

The use of corticosteroids in various formsand doses has been known as the maintherapeutic approach in childhood nephritic syndrome. Children routinely receive highdosecorticosteroid therapy; as many as 45%will have a frequently relapsing course andsome will be steroid-dependent. Childrenwithnephrotic syndrome often experienceserious problems with depression, anxietyand increased aggression during high-doseprednisone therapy.

Female sex, past psychiatric history, prednisonedose of more than 40 mg/day and long-termadministration are considered to be the majorrisk factors for steroid psychosis. In our case,three of these risk factors - female gender, over1 g prednisone and steroid treatment for morethan two years - were present.

Steroid psychosis often occurs from a fewdays to two weeks after administration of thisagent. Although our patient had been receivingprednisone for more than two years, she hadnot developed any psychiatric manifestations.When sheexperienced psychiatric symptoms,her albumin level was 1.6 g/dl and she hadsignificant proteinuria. The explanation for thismay be that synthetic steroids bind to serumalbumin, at which point they are inactive.

Therefore, higher levels of free and activefraction of steroids along with low plasmaalbumin levels will expose the patient to moreadverse effects10. Interestingly, the incidence ofpsychosis in nephrologic patients is higher thanother groups of patients treated with steroids.

Thus, those patients withdisease causing low levels of serum proteins wouldbe predisposed to experience more adverseeffects with steroids. Our case had normalserum albumin level (3 g/dl) with normalrenal function in the period without psychiatricsigns/symptoms

IV. Conclusion

Referring to the described case above, wesuggest that psychotic reaction should betaken into account as a possibility in allchildren who develop behavioral changes duringcorticosteroid treatment; atypical antipsychoticssuch as olanzepine may be considered notonly as a part of the treatment but also as aprophylactic agent.

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