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**Full title:** Successful Methyl-prednisolone Desensitization In a Pediatric Patient

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### **Successful Methyl-prednisolone Desensitization In a Pediatric Patient**

To the Editor;

Corticosteroids (CS) have anti-inflammatory and immuno-suppressive effects and ~~which~~ they are widely used for allergic diseases, autoimmune and immune-related diseases. CS cause rarely immediate type hypersensitivity reactions after administration of oral and parenteral. Incidence of reaction has been reported 0.3-0.5% (1, 2). Methyl-prednisolone (MPZ) is one of the most common corticosteroids that caused allergic reactions (3, 4).

Here we presented a 6.5-year-old boy who was taking pulse MPZ treatments (1 g metil prednizolon sodyum süksinat-Prednol®, with 1 hour infusion) for Henoch-Schönlein purpura in the pediatric rheumatology unit. On the second day of the treatment, he experienced angioedema on the eyelids and lips, dyspnea, hypotension, nausea and emesis at 20 min after starting MPZ infusion. This situation was considered to be a MPZ associated anaphylactic reaction. The infusion was stopped. Adrenalin (1/1000; 0.01 mg/kg) administered by

intramuscular injection and hydroxyzine 0.5 mg/kg was administered. Skin prick and intradermal tests with MPZ could not be performed because the patient was taking antihistamines. Also, performing skin testing immediate after reaction we get false results, because the time interval between the occurrences of an acute allergic reaction and the performance of skin testing should be minimum 4 weeks. Since the patient had to receive the treatment and there was no alternative drug, it was planned to perform MPZ desensitization.

Three different solutions that contained 0.04 mg/mL, 0.4 mg/mL and 4 mg/mL concentrations of methyl-prednisolone were prepared (preparation forms of the solutions are shown on table I). The desensitization protocol was completed in a total of 12 steps and within 5 hours and 51 minutes (Table I). The patient could tolerate the drug without reaction after desensitization.

The next day, 1 g of MPZ was administered according to standard recommendation (1 g in a 250 mL saline solution, administered at a rate of 250 mL/h). The subsequent days, administrations of MPZ are continued 2x0,5 mg/kg/dose oral route. No reaction was observed.

Drug desensitization is a technique that induced temporary tolerance to drug and allowing medication which patients have presented severe hypersensitivity reaction. In desensitisation most commonly used protocol is based on three different solutions and 12 steps. There is no standard desensitization protocol for methyl-prednisolone. Angel-Pereira et al desensitized a 34 year old male patient with intravenous form of MPZ to 12 steps (5). In our case the MPZ desensitization protocol applied by Angel-Pereira et al. was used with modifications.

To our knowledge, this is the first pediatric case in the literature to describe successful desensitization to anaphylaxis due to methyl-prednisolone.

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| Step | Solution type <sup>a</sup> | Infusion rate, mL/h | Infusion duration, min | Volume administered with this step, mL | Dose administered with this step, mg | Cumulative dose, mg |
|------|----------------------------|---------------------|------------------------|----------------------------------------|--------------------------------------|---------------------|
| 1    | <i>A</i>                   | 2                   | 15                     | 0.5                                    | 0.02                                 | 0.02                |
| 2    | <i>A</i>                   | 5                   | 15                     | 1.25                                   | 0.05                                 | 0.07                |
| 3    | <i>A</i>                   | 10                  | 15                     | 2.5                                    | 0.1                                  | 0.17                |
| 4    | <i>A</i>                   | 20                  | 15                     | 5                                      | 0.2                                  | 0.37                |
| 5    | <i>B</i>                   | 5                   | 15                     | 1.25                                   | 0.5                                  | 0.87                |
| 6    | <i>B</i>                   | 10                  | 15                     | 2.5                                    | 1                                    | 1.87                |
| 7    | <i>B</i>                   | 20                  | 15                     | 5                                      | 2                                    | 3.87                |
| 8    | <i>B</i>                   | 40                  | 15                     | 10                                     | 4                                    | 7.87                |
| 9    | <i>C</i>                   | 10                  | 15                     | 2.5                                    | 10                                   | 17.87               |
| 10   | <i>C</i>                   | 20                  | 15                     | 5                                      | 20                                   | 37.87               |
| 11   | <i>C</i>                   | 40                  | 15                     | 10                                     | 40                                   | 77.87               |
| 12   | <i>C</i>                   | 75                  | 186                    | 232.5                                  | 922                                  | 1000                |

**Tablo I: Methyl-prednisolone intravenous desensitization protocol**

Abbreviation: min, minutes.

<sup>a</sup> **Solution A:** 25 mL solution B + 225 mL %5 dextrose with water (D5W) (concentration: 0.04 mg/mL)

**Solution B:** 25 mL solution C + 225 mL D5W\* (concentration: 0.4 mg/mL) **Solution C:** 1000 mg drug + 250 mL D5W\* (concentration: 4 mg/mL)