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Anahtar Sözcükler: Çift pozitif T-lenfositleri, Akış sitometrisi, Doğal öldürücü T-hücreleri

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Vaccination and Thrombotic Thrombocytopenic Purpura

Aşılama ve Trombotik Trombositopenik Purpura

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To the Editor,

The article entitled "Diagnostic Testing for Differential Diagnosis in Thrombotic Microangiopathies," written by Zini and De Cristofaro [1] and published in one of the recent issues of your journal, was quite interesting. Herein, I wish to contribute to that article.

In the adult age group, vaccines did not contribute to the development of immune thrombocytopenia (ITP), but an increase

was reported in diphtheria-tetanus-pertussis-poliomyelitis vaccines without statistical significance [2]. Immune-origin thrombocytopenia may be developed after many vaccines such as measles-mumps-rubella and varicella, polio, rabies, and meningococcal C, especially in childhood. This occurs with 1-3/100,000 vaccine doses. Molecular mimicry theory is thought to play a role in the development of ITP [3]. In adult cases, development of thrombocytopenic thrombotic purpura (TTP) has been reported with some vaccines [4,5,6,7,8,9]. These cases

Table 1. TTP cases developed after vaccination in the literature.

Vaccine type	n	Age (years)	Sex	Time of development	Literature
Rabies	1	28	Male	14 th day	Kadikoylu et al. [4]
Pneumococcal	1	68	Female	15 th day	Kojima et al. [5]
Influenza	1	Unknown	Unknown	Unknown	Ramakrishnan and Parker [6]
Influenza	1	54	Male	5 th day	Dias and Gopal [7]
H1N1	1	56	Male	13 th day	Hermann et al. [8]
Influenza	1	23	Female	14 th day	Brown et al. [9]

are summarized in Table 1. It is generally seen with vaccinations against viral agents. A frequent occurrence with vaccines against influenza may be relative due to more intensive vaccination. It is especially important within 2 weeks after vaccination.

Consequently, attention should be paid to the development of TTP after vaccination.

Keywords: Vaccination, Thrombotic thrombocytopenic purpura

Anahtar Sözcükler: Aşılama, Trombotik trombositopenik purpura

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References

1. Zini G, De Cristofaro R. Diagnostic testing for differential diagnosis in thrombotic microangiopathies. *Turk J Hematol* 2019;36:222-229.
2. Grimaldi-Bensouda L, Michel M, Aubrun E, Leighton P, Viallard JF, Adoue D, Magy-Bertrand N, Tisserand G, Khellaf M, Durand JM, Quittet P, Fain O, Bonnotte B, Morin AS, Limal N, Costedoat-Chalumeau N, Morel N, Pan-Petes B, Decaux O, Mahevas M, Ruel M, Sacre K, Lefrere F, Abenheim L, Godeau B; PGRx Immune Thrombocytopenia Study Group. A case-control study to assess the risk of immune thrombocytopenia associated with vaccines. *Blood* 2012;120:4938-4944.
3. Cecinati V, Principi N, Brescia L, Giordano P, Esposito S. Vaccine administration and the development of immune thrombocytopenic purpura in children. *Hum Vaccin Immunother* 2013;9:1158-1162.
4. Kadikoylu G, Yavasoglu I, Bolaman Z. Rabies vaccine-associated thrombotic thrombocytopenic purpura. *Transfus Med* 2014;24:428-429.
5. Kojima Y, Ohashi H, Nakamura T, Nakamura H, Yamamoto H, Miyata Y, Iida H, Nagai H. Acute thrombotic thrombocytopenic purpura after pneumococcal vaccination. *Blood Coagul Fibrinolysis* 2014;25:512-514.
6. Ramakrishnan N, Parker LP. Thrombotic thrombocytopenic purpura following influenza vaccination--a brief case report. *Conn Med* 1998;62:587-588.
7. Dias PJ, Gopal S. Refractory thrombotic thrombocytopenic purpura following influenza vaccination. *Anaesthesia* 2009;64:444-446.
8. Hermann R, Pfeil A, Busch M, Kettner C, Kretzschmar D, Hansch A, La Rosée P, Wolf G. Very severe thrombotic thrombocytopenic purpura (TTP) after H1N1 vaccination. *Med Klin (Munich)* 2010;105:663-668.
9. Brown RC, Blecher TE, French EA, Toghiani PJ. Thrombotic thrombocytopenic purpura after influenza vaccination. *Br Med J* 1973;2:303.

Reply

To the Editor,

Thank you for your communication.

The short letter that refers to our article provides some useful additional information and does not need any reply or comment.

Best regards,

Gina Zini and Raimondo De Cristofaro

