INFECTIVNI ERITEM KOD DECE - KLINIČKA STUDIJA
ERYTHEMA INFEKTOSIUM IN CHILDREN: A CLINICAL STUDY

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Sažetak - Infektivni eritem je dečija osipa bolest, koja se karakteristično javlja u ranom trupnom razdoblju, bez bilo kakvih poremećaja pokraj crvenkastog oblika. Služi kao zavod za protivirusni B19. Liječenje je sredstvom bosna i mladića.


Summary - Erythema infectiosum is a childhood illness characterized by mild constitutional symptoms and a blotchy or maculopapular rash on the cheeks (erupted - cheeks spreading primarily to the extremities and trunk. The disease is caused by human parvovirus B19. Erythema infectiosum epidemics occur in a cyclical fashion, mostly during winter and spring months. The diagnosis of erythema infectiosum is usually based on the appearance and pattern of the rash. The aim of our study was to establish the frequency and clinical characteristics of erythema infectiosum in children, in the period between 2000 and 2004 at the Institute of Child and Youth Health Care, Department of Dermatology. Next Sad. There were 92.4% of children with a clinical picture of infectious erythema. There was an outbreak of erythema infectiosum from December 2001 to September 2002. The highest number of cases was detected in April and May of 2002 from 2003 to 2004, no cases with infectious erythema were diagnosed. The average age of infected children was 7.24. Female children were affected slightly more often than males (56.4%: 43.6%). Pruritus was detected in 10.29% of cases. The most constant clinical sign was reticular exanthem on the limbs, present in 100% of cases, followed by 59.74% of cases, while lymphatic exanthem was present in 74% of children. No complications were recorded in any of the cases.

Key words: Erythema Infectiosum - diagnosis - epidemiology: Child. Signs and Symptoms: Adolescence. Periodicity

Uvod

Infektivni eritem (EI) je dečija osipa bolest, koja se karakterišu homogenom, kao izraženim eritemnom oblihom i međuzanim osipom, lokalizovanim na ekstremitetima i trupu, bez bilo kakvih poremećaja onog staništa [1,2]. Izazivač je parvovirus B19 (PV B19). Membranski receptor za PV B19 je antigen P4 krvnih grupa, što objašnjava poseban tropizam PV B19 za entrobaste. Najčešće se prenosi kapljivim putem, a dokazano je prenos vireusa parenhernim i transplantacionim putem. PV B19 se umnožava prvo u gornjem respiratornom traktu, potom nastupa viremija i replikacija virusa u entroblastima, što inhibise proliferaciju prethodnih entrobata. Infekcija sa PV B19 može izazvati aplastične krize kod osoba sa hroničnim hemoglobinopatijama [12]. Kod osoba sa imunološkim deficijentom može nastati perzistentna infekcija sa PV B19, koja pro-

Introduction

Erythema infectiosum (EI) is an acute childhood illness characterized by mild constitutional symptoms and a blotchy or maculopapular lacy rash on the cheeks spreading primarily to the extremities and trunk [1,2]. The disease is caused by human parvovirus B19 (PV B19). The receptor molecule for B19 is a glycolypid antigen on the surface of erythrocytes. Transmission presumably occurs through contact with infectious respiratory secretions. Parenteral and transplantational transmission have been proved as well. The replication cycle includes infection of mitotically active cells such as erythroid precursor cells. The virus first replicates in the upper respiratory tract, followed by viremia and replication in the erythroid precursor cells in the bone marrow. This replication inhibits proliferation of precursor erythrocytes. Infection of hosts with chronic
Skrcaćice

EI - infektivni eritem
Pv B19 - Parvovirus B19
DNK - deoxyribonukleinska kiselina
ELISA - enzim-vezani immunosorbentni esej
RIA - radio immun esej
PCR - polimeraza lančana reakcija
SE - sedimentacija eritrocita
KKS - kompletna krvi slika
RKV - reakcija vezivanja komplementa
IZZDJO - Institut za zdravstvenu zaštitu dece i omladine

uzrokuje tešku hroničnu anemiju. Kod sveže infekci-
ranih trudnica postoji rizik od nastanka fatalnog
hidroza u 10% slučajeva [3]. EI se javlja periodič-
čno, svaki 4 do 7 godina, u zimskim i prolećnim
mesecima, u vidu manjih epidemija [4]. Obolevaj
uglavnom školski deca, pretežno ženskog pola.
Inzukaucija iznosi 4 do 14 dana [5,6]. Bolesnici
s obrazu u inzukauciji, a pri pojava osipa infektivnost
gubi [6].

Bolest obično počinje naglo, bez prethodnih pro-
dromalnih simptoma. Erupcija se odvija u tri faze.
Prva faza se karakteriše homogenom, jako izraženim
eritemom obrazom, te dete izgleda kao da je "oša-
mareno". Eritem štedi perioralnu, nazalnu i periori-
ortalnu regiju. Traje 2-4 dana. U drugoj fazi bolesti
pojavljuje se imetralni, makuloznji ili makulopapu-
loznji osip, lokalizovan uglavnom na gornjem ekstre-
mitetima, izraženiji na ekstenzorini strani ekstre-
miteda. Osip se može proširiti na trup (štedi abdo-
men), sedalni predeo i donje ekstremitete. Nakon
nekoliko dana, centralni deo promena bledi, dok
periferni deo ostaje očuven, stvarajući se i dajući
karakterišan izgled "ogrlice" ili "čipke". Oko
15% dece žali se na svarb. Osip pokazuje tipičan
tok, postoji stalno smirivanje i egzacerbacija pro-
mena pri mehaničkoj, fizičkoj ili emocionalnoj dra-
ži, što neki autori opisuju kao treću fazu bolesti [1,
5,6].

Dijagnoza EI najčešće se postavlja na osnovu
karakteristične kliničke slike i epidemioloških poda-
taka [1,6,7]. Kod trudnica, oboljelih od hroničnih
hemoglobinopatija i immunodeficientnom stanju
neophodna je etiološka potvrda dijagnoze [7]. Za
dokazivanje ranih IgM AT na Pv B19 koriste se
ELISA i RIA test. Najsigurnije i najsensitive
metoda za dokazivanje DNK PvB19 je PCR me-
toda [2,6]. Diferencijalno-diagnostički treba raz-
matrati: ostale osipne groznice, druge osipe virusne
etiološke (enterovirusi), Šarlak, osipe alergijskog
porekla, reakcije na lekove, erizipel lica i sistemski
eritematozni lupus [1,6,7].

El spontano prolaži za dve nedelje, mada se re-
cidivi osipa mogu javljati tokom nekoliko nedelja,
pri mehaničkoj, fizičkoj ili emocionalnoj draži. Tera-
pija najčešće nije potrebna, eventualna simptomatska
(antipiretici, antihistaminici) [6,7].

Abbreviations

EI - erythema infectiosum
Pv B19 - Parvovirus B19
DNK - deoxyribonucelinska kiselina
ELISA - enzyme-linked immunosorbent assay
RIA - radioimmun assay
PCR - polymerase chain reaction
SE - erythrocyte sedimentation
CR - complete blood count
CRF - complement-fixing relationship
IZZDJO - Institute of Child and Youth Health Care

hemoglobinopathy may result in aplastic crises [2].
Immunodeficient patients may develop protracted
infections with severe anemia. Recent infection in
pregnant women can result in hydrops fetalis in
10% of cases [3]. EI epidemics occur in a cyclic
fashion, every 4-7 years, mostly during winter and
spring months [4]. Localized outbreaks are common
among schoolchildren, mainly girls. The incubation
period is 4 to 14 days [5,6]. Persons with EI arc in-
fected only during the incubation period, prior to
the onset of rash [6].

EI usually develops suddenly, without any costi-
tutional symptoms. EI is a three phase illness. The
first phase starts with confluent, erythematous, ede-
matous plaques on the cheeks (slapped cheeks).
Erythema spares the perioral, nasal and perior-
icular regions. The second phase takes place as the
facial rash fades after 2 to 4 days. Symmetrical,
bloody or maculopapular rash appears on the ex-
tensor surfaces of the extremities, particularly upper
extremities. Rash can extend to the trunk (sparing
the abdomen), gluteus and lower extremities. These
lesions have a central pale area with a characteristic
lacy or reticulated appearance. Pruritus is present in
about 15% of children. EI has a typical course with
frequent improvement and exacerbation caused by
sunlight, exercise, temperature changes, bathing and
emotional stress. Some authors call it the third
phase [1,5,6].

The diagnosis of EI is usually based on clinical
features [1,6,7]. Serologic testing for PV B19 IgG
and IgM is indispensable for pregnant women who
are exposed to it. Patients with chronic hemo-
globinopathy and immunodeficiency [7]. Detection
of recent infection is usually performed using as-
says for IgM antibody, radioimmunassay (RIA) or
enzyme-linked immunosorbent assay (ELISA) tech-
niques. The most sensitive and the most specific
test is polymerase chain reaction (PCR) [2,6]. Di-
ferential diagnosis should include other rash dis-
orders, other rashes of viral origin (enteroviral infec-
tion), scarlet fever, erythema exsudativum, hypersen-
sitivity reaction, and systemic lupus erythematosus
[1,6,7].

EI lasts two weeks, although it can recur with
mechanical, physical or emotional triggers. The dis-
ease is mild and only symptomatic treatment is ne-
cessary (antipiretics, antihistamines) [6,7].
Material and methods

The study was carried out on 39 children, aged 2-14, with a clinical picture of infectious erythema, treated during the period from 2000 to 2004 at the Institute of Child and Youth Health Care, Department of Dermatology, Novi Sad. The study was retrospective and it examined:

- Total number of examined patients in the above period;
- The number of patients in the five-year period;
- The number of patients by season;
- Age distribution;
- Sex distribution;
- Presence of constitutional symptoms of infection;
- Clinical picture;
- Laboratory tests;
- Routine laboratory analyses (SE, CBC, Urin) and serological reactions to viruses (Rubella, Adenovirus and Coxsackie virus) were performed in 10 patients.

Results

During the study period (from the beginning of 2000 to the end of 2004), at the Institute of Child and Youth Health Care, Department of Dermatology, Novi Sad, the total number of first visits was 16766. Viral skin infection was present in 1597 (9.52%) children. EI was detected in 39 children (0.23%). Graph No. 1 shows the number of patients in the five-year research. During 2000, the disease was not detected. Sporadic cases appeared by the end of 2001. During 2001, the disease was detected in December. From December 2001, to September 2002, there was a sudden outbreak of EI. During 2003 and 2004, no cases were detected (Graph 1). The number of patients by season is presented in Graph 2. The highest number of cases was recorded in the period of April and May, 2002 (Graph 2).

The children were 2 to 14 years of age. Most patients were aged 7 to 10, with the average age of 7.38±2.066 (Graph 3). There were 22 girls and 17 boys affected (56.41%: 43.58%) (Graph 4).
Prvi pacijenti oboleti od EI su dijagnosticovani u decembru meseca. Najveći broj bolesnika takom aprila a maja meseca, što je u skladu sa podacima iz literature o češčem javljaju uzroke u zimu i proljeće. [4,5,8]. Vrh incidencija EI je od 5. do 10. godine [5], a najveći broj oboletih u našem ispitivanju bio je uzrasta od 7. do 10. godine. U literaturi se navodi da od EI obolevaju oba pola, nešto češće ženski [5,6], i u našem ispitivanju, devojčice su obolele nešto češće nego deca (56,4%: 43,58%).

Za razliku od Rewillea i saradnika [9], u šijem istraživanju je eritem obraz bio najpriznati simptom (100%) kod naših bolesnika najkonstantniji.
Simptom je bio mrežast eritem na proksimalnim ekstremitetima (100%). Palmpplantarni eritem se izuzetno retko javlja kod El [5,6]. U našem ispitivanju bio je prisutan kod svega jednog dečaka (2,56%).

U literaturi se opštii simptomi bolesti opisuju češće nego u našem istraživanju: glavobolja kod 20% obolele dece, povišena temperatura kod 20% obolelih, gušćobolja kod 15% obolelih, bistra sekrecija iz nosa, bol u stomaku i artralgije kod 10% obolelih [10].

Prikazane rezultate možemo objasniti time što je u našu vremena uopšten samo jedan deo obolelih od El, dobrog opšteg stanja. S obzirom da je El osipa groznica, određeni broj pacijenata sa opštim simptomima infekcije, verovatno je uopšten na Kliniku za infektivne bolesti. Ni kod jednog deteta nisu zabeležene komplikacije obojenja. U sličnom istraživanju Rewille i saradniki, obojenje je takođe imalo dobročudan tok [9].

U našem istraživanju limfadenopatija je bila prisutna kod 5,12% dece, pri čemu su bili povećani okcipitalni limfni čvorovi. Kod te dece su ugrađene serološke reakcije na rubelu, adenovirus i koškaste virusne i bile su uredne. Nažalost, iz tehničkih razloga, nismo bili u mogućnosti da ugradimo u laboratorijske testove kako bi dokazali Pv B19, kao uzročnika obojenja. Međutim, u literaturi se navodi, da kod postojanja karakteristične kliničke slike i toka bolesti bez komplikacija, kod prethodno zdrave dece, nije neophodna laboratorijska potvrda uzročnika [6,7]. Takođe, nije potrebno raditi osnovne laboratorijske analize, pošto su one uredne, izuzev moguće blage eozinofilije [10]. Kod naših dece, bolesnika, nalazi SE, diferencijalne KKS i urina su bili u granicama referentnih vrednosti.

Dijagnoza El ne bi trebalo da predstavlja problem, zbog svoje karakteristične kliničke slike i toka bolesti. Osip u vidu "geografske karte sa jezerima" se opisuje kao najviše u većini osoa, a tok bolesti, sa izgledom "osamarenih obraz" ili "obraz opaljenih sunčen" pre izbijanja osoa, vida se samo kod ovog oboljenja. Međutim, u IZZIDIO, najveći broj bolesnika je upućen pod unijom na urinotokiju ili oso alergijskog perekla. Relativno veliki broj dece (17,94%) bio je prethodno na dijeti i dobijao u terapiji antihistaminike i kortikosteroidne parenterale. Mada El nije retko oboljenje, bolest se pojavljuje periodično na svakih 4−7 godina, u vidu sporadičnih epidemija koje traže nekoliko meseci, te verovatno zato ostaje neprepoznat u primarnoj zdravstvenoj zaštiti.

Zaključak

Sva obolela dece su imala karakterističnu kliničku sliku i dobročudan tok bolesti. Pošto se dijagnoza infektivnog eritema postavlja najčešće na during April and May, which is in concordance with literature data about more frequent outbreaks in winter and spring [4,5,8]. The peak incidence (impact) of EI is between the age of 5 and 10 [5] and most patients in our study were from 7 and 10 years of age. According to the literature, both sexes are affected by EI, however, it is somewhat more frequent in girls [5,6]. In our research it was also more frequent in girls than in boys (56.41%:43.59%).

In contrast with the study by Rewille and associates [9] who claim erythema was the most present factor (100%), the most constant symptom in our patients was lacy erythema on proximal extremities (100%). Palmar and plantar erythema is very rare in EI [5,6]. In our study it was present only in one boy (2.56%). In literature, general symptoms of the disease are described more frequently than in our research: headache in 20% of all children, fever in 20% of the diseased, sore throat in 15%, coryza, stomach ache and arthralgies in 10% [10].

Our results can be explained by the fact that only a number of infected by EI were sent to our institution, generally in good condition. Considering the fact that EI is a rash infection, a number of patients with general symptoms were probably sent to the Communicable Diseases Clinic. None of the children presented with any further complications. In a similar study by Rewille and associates, the illness had a mild course [9].

In our study lymphadenopathy was present in 5.12% of patients with enlarged occipital lymph nodes. Serological reactions for rubella, adenovirus and coxsackie were carried out in those children and resulted negative. Unfortunately, due to technological reasons, it was impossible to carry out any laboratory tests to prove Pv B19 as the cause of the disease. However, according to the literature, laboratory proof of the cause is not necessary in case of a characteristic clinical picture and the course without any complications in previously healthy children [6,7]. Also, it is not necessary to perform any basic laboratory analyses since they are negative, except possibly mild eosinophilia [10]. The results of SE, differential CBC and urine were within the limits of reference values in ten patients.

The EI diagnosis should not be a problem because of its characteristic clinical picture and course of illness. Rash in the form of a "geographical map with lakes" is described as the most picturesque of all the rashes, while the course of illness with the aspect of a slapped face or sun-burnt face prior to rash, is seen only in this disease. However, most patients sent to our Institute were suspected of urticaria or rash of allergic origin. A relatively large number of children (17.94%) were previously put on a diet and therapy with antihistaminics and corticosteroids parenterally. Even though EI is not a rare disease, it appears periodically every 4-7 years in the form of sporadic epidemics lasting for several months, which could be the reason why it is not easily detected in the primary health care.
Conclusion

All infected children had a characteristic clinical picture and a mild course of illness. Since the diagnosis of E1 is usually based on the clinical picture, it is important to know about the clinical course and the periodical, seasonal outbreaks of the illness in the everyday work with young patients! Even if it has a mild course in previously healthy persons, we must not forget the risks of hydrops fetalis in early pregnancy. Besides, there is a certain risk of aplastic crises in patients with chronic hemoglobinopathy which may have a fatal outcome [11]. We must emphasize the fact that at the moment of rash outbreak, the children are no longer infectious and can join the community. However, patients with immunodeficiency may be the source of infection, thus their isolation is indispensable.

Literatura

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