MICROBIOLOGICAL FINDINGS IN CHILDREN WITH KAWASAKI DISEASE. RESULTS OF A NATIONAL STUDY (KAWA-RACE 2011-2016)

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Background

Kawasaki disease (KD) is a multisystem vasculitis associated with coronary artery abnormalities in children. The relationship between infection and KD is still unclear.

Methods

Retrospective study performed within the KAWA-RACE network (2011-2016). We analysed patients with positive microbiological findings (PMF) and those with a previous recent infection (PRI) during the 4 weeks preceding KD.

Figure1. Positive microbiological findings in patients with KD

Table1. Epidemiological and clinical findings in patients with Kawasaki disease and positive microbiological findings and/or previous recent infection

Epidemiological and clinical data	Positive microbiological finding (n= 101)	No positive microbiological finding (n=520)	p	Previous recent infection (n=107)	No previous recent infection (n=514)	p
Gender male, n(%)	61 (61%)	330 (64%)	0,62	67 (63%)	324 (63%)	0,54
Age <12 months, months	15 (16%)	88 (18%)	0,65	16 (16%)	87 (18%)	0,68
KD ¹ complete, n(%)	72 (71%)	365 (70%)	0,97	77 (72%)	360 (70%)	0,64
Conjunctival injection, n(%)	83 (83%)	444 (86%)	0,37	90 (85%)	437 (86%)	0,76
Oral cavity changes, n(%)	93 (93%)	468 (91%)	0,52	99 (93%)	462 (91)	0,41
Changes in extremities, n(%)	70 (71%)	372 (74%)	0,54	75 (71%)	367 (74%)	0,65
Exanthema, n(%)	83 (84%)	443 (87%)	0,34	92 (89%)	434 (87%)	0,58
Cervical lymphadenopathy, n(%)	67 (68%)	332 (65%)	0,65	80 (76%)	319 (64%)	0,01
Mean duration of fever (days)	8,57 ± 3,92	8,38 ± 3, 67	0,64	8,35 ± 4,02	8,43 ± 3,64	0,83
Days from fever onset to IVIG ² (days)	7,88 ± 6,87	7,04 ± 3,84	0,10	6,69 ± 3,02	7,30 ± 4,77	0,23
Mean ESR ³ , mm/h	83 ± 34	72 ± 34	0,01	78 ± 32	73 ± 35	0,23
Mean CRP ⁴ , mg/dl	46 ± 70	35 ± 61	0,12	34 ± 57	37 ± 64	0,59
Mean ALT ⁵ , UI/L	102 ± 131	84 ± 128	0,20	72 ± 88	90 ± 135	0,09
Mean white cell count, X10 ⁹ /L	18073 ± 6210	17911 ± 7745	0,84	18298 ± 6553	17870 ± 7631	0,63
Media neutrophil count, X10 ⁹ /L	11950 ± 5005	11918 ± 6141	0,96	12478 ± 5796	11808 ± 5955	0,35
Abnormal ECHO ⁶ , n(%)	32 (34%)	165 (33%)	0,85	24 (23%)	173 (35%)	0,01
Coronary artery abnormalities, n(%)	20 (20%)	123 (24%)	0,40	17 (16%)	126 (25%)	0,05
Presence of aneurysm, n(%)	9 (9%)	50 (10%)	0,82	7 (7%)	52 (10%)	0,25
Second dose of IVIG ² , n(%)	19 (19%)	79 (16%)	0,49	19 (19%)	79 (16%)	0,46

¹KD: Kawasaki disease, ²IVIG: Intravenous immunoglobulin, ³ESR: Erythrocyte sedimentation rate, ⁴CRP: C-reactive protein, ⁵ALT: Alanine transaminase, ⁶ECHO: echocardiogram

Results

A total of 621 children with KD were included. PMF was found in 101 (16%) patients (110 samples) and PRI in 107 (17%). We found significant less overall cardiac abnormalities, but no more cardiac aneurysms, in the group with PRI when compared to those without PRI, yet no differences in the group with a PMF. We found a significant higher ESR level in the PMF group (82 vs 72 mm/h) (table1). Throat infection was the most common proven acute infection 69/110 (63%) (figure1) and PRI 65/107 (61%).

Conclusions

- Clinical presentation of most childhood infections overlap with KD making diagnosis challenging.
- We found a lower incidence of cardiac abnormalities in the group with a PRI meaning that KD may be overdiagnosed and overtreated, but this practice seems justified because of the risk of developing CAA.
- A positive microbiological result should not rule out KD and should not delay treatment if KD is highly suspected.