



Features of immune response and inflammation in Kawasaki disease, Adenovirus respiratory infections and multisystem inflammatory syndrome in children

Marianna Fabi, Arianna Dondi, Giovanni Battista Biserni, Laura Andreozzi, Emanuele Filice, Bianca Elisa Mattesini, Alessia Rizzello, Marcello Lanari

Department of Pediatrics, IRCCS Azienda Ospedaliero-Universitaria di Bologna, Bologna, Italy.

Background

- ✓ KD, MIS-C, and Adenovirus infections share demographic, clinical and laboratoristic inflammatory features.
- ✓ Early diagnosis can allow a proper and prompt treatment.
- ✓ Inflammatory and immune response can help understanding the physiopathogenic mechanisms of these conditions.

Aim

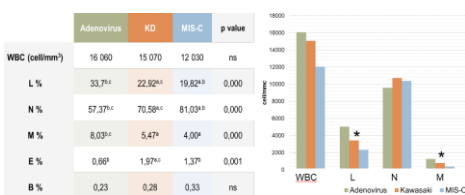
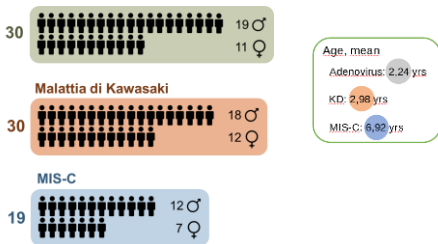
To explore the inflammatory cytokine response and lymphocyte subset populations of the acute phase in children with KD, MIS-C and Adenovirus infection of the upper airways.

Methods

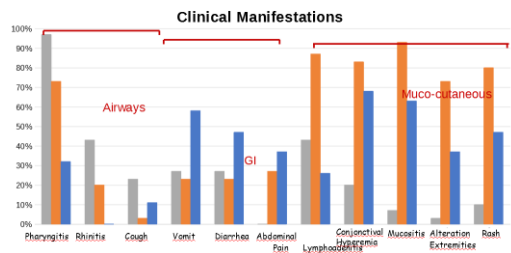
Cross sectional study enrolling all consecutive children diagnosed with KD, MIS-C and Adenovirus infections.

Demographic data, laboratory tests, inflammatory cytokines (IL-1 β , IL-6, IL-8, IL-10, IL-12p70 e TNF- α), lymphocyte subsets (total B and T lymphocytes, T helper lymphocytes, T cytotoxic lymphocytes, Natural Killer) were recorded.

Results



	Adenovirus	KD	MIS-C	p value
BC %	8.42 ^{ns}	6.84 ^{ns}	5.87 ^{ns}	0.027
TC %	22.19 ^{ns}	13.46 ^{ns}	9.59 ^{ns}	0.000
NK %	3.56 ^{ns}	2.55 ^{ns}	1.33 ^{ns}	0.000
TH %	13.64 ^{ns}	8.22 ^{ns}	5.86 ^{ns}	0.000
CTL %	6.66	4.21	3.87	ns
CD4/CD8	2.53	2.07	1.80	ns



	Adenovirus	KD	MIS-C	p value
CRP (mg/dL)	8.59 ^{ns}	11.02 ^{ns}	16.13 ^{ns}	0.001
Hb (g/dL)	11.0	10.9	10.4	ns
PLT (/mm ³)	367,500 ^{ns}	420,790 ^{ns}	237,850 ^{ns}	0.001
GOT (U/L)	40.15	38.93	73.89	ns
GPT (U/L)	17.81 ^{ns}	37.52 ^{ns}	53.21 ^{ns}	0.008
LDH (U/L)	415.27	347.70	347.22	ns
Albumin (g/L)	41.18 ^{ns}	32.63 ^{ns}	31.45 ^{ns}	0.000
Total Bilirubin (mg/dL)	0.32 ^{ns}	0.73 ^{ns}	0.54 ^{ns}	0.006
Direct Bilirubin (mg/dL)	0.08 ^{ns}	0.37 ^{ns}	0.21 ^{ns}	0.021
gG (mg/dL)	574	844	884	ns
gA (mg/dL)	121	80	104	ns
gM (mg/dL)	80	104	118	ns

	Adenovirus	KD	MIS-C	p value
TNF- α (pg/mL)	7.59 ^{ns}	8.74 ^{ns}	0.92 ^{ns}	0.037
IL-1 β (pg/mL)	5.35	39.93	2.08	ns
IL-6 (pg/mL)	294.76 ^{ns}	355.16 ^{ns}	120.64	0.014
IL-8 (pg/mL)	1269.82	6269.07	89.38	ns
IL-10 (pg/mL)	3.53 ^{ns}	9.30 ^{ns}	31.28 ^{ns}	0.018
IL-12p70 (pg/mL)	0.88	3.44	0.15	ns

Conclusions

Despite sharing clinical features at presentation, inflammatory and immune response is different in the three conditions.