Parietal love, thermorgulation and febrile seizures in an evolutionary quest

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Introduction: Febrile seizures (FS) have remained a relevant topic; thermoregulation and febrile-responses, complex processes, are important aspects of the unsolved puzzle. Methods: Here, thermoregulation, the parietal lobe and FS are explored from evolutionary-pressure data-sets for insights/contributing-factors to FS age-dependent-vulnerability. Results/Discussion: Human thermoregulation evolutionary-quest is for maximal-performance at optimal-temperatures; for insects/viruses the quest is not performance, but population-growth, Exotherms external heat-sources define a narrow range-of-per-formance; their thermal-sensitivity-quest, explained only by natural selection, never any thermodynamic-properties; endotherms (birds/mammals) evolved thermally-constrained internal-set-points promoting heat-loss; some mammals have selective-brain-cooling (SBC), separating brain temperature (T_{brain}) regulation independently from body temperature (T_{trunk}), keeping T_{brain} T_{trunk}, pbrain is dominated by cerebral-blood-flow (CBF), which couples T_{brain} and T_{trunk}. For maximal performance, continual incoming CBF, optimally warmed by the T_{trunk}, supports/replenishes T_{brain}, perfusing its vascular-channels, which work as a hydraulic-network-exchange. Unique to human-species, early ontogeny, 4^{th}-6^{th}-month window-timeframe, the parietal lobe begins to grow/develop/reorganize in space; this is a noteworthy evolutionary-step, a structure-and-function biological-signal; changes in geometry/architecture/patterned connections induce new intrinsic relationships for energy-efficiency/balance/ thermoregulation. The emerging/maturing parietal lobe becomes a prominent-hub, a primary integration-center, and also a meeting-point for 4-neurocranial vascular-systems to integrate as a connective-network-exchange with increased radiations/anastomoses/reticulations of blood-vessels. Evolution's principle of variability in timing of parietal tissue/vascular development applies. Even in adulthood, the parietal-lobe variability is 18%. As a common pediatric-neurological-disorder, worldwide, and epidemiology ranging 2-5% (Western-countries), 7-9% (Asian-Pacific), FS susceptibility focuses specifically on childhood, 6-months to 5-years. Genetic-mutations have accounted for only a minority of children with FS; most cases underlying-basis remains unsolved. In an evolutionary quest, thermoregulation may be the common factor linking parietal developmental- morphology-variability with its vasculature changes for heat-dispensation. FS are a starting point to discover this. Conclusion: In return, a puzzle may be solved.

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