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Correspondence and Personal Opinion

One good match permits another—why HLA-matched blood transfusion makes sense

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Standard management of patients with chronic renal impairment includes the avoidance of transfusion of allogeneic red cells where practicable. This encourages erythropoiesis and minimizes exposure to human leukocyte antigen (HLA) molecules present in the transfusion [1]. Where patients become sensitized to HLA following exposure to donor material, this can limit the availability of potential kidney donors from the deceased donor pool. Significantly, there is also potential to be sensitized to living-related donors.

We describe a case which led our service to alter our blood transfusion practice. A 7-year-old male with both Leber's congenital amaurosis (LCA) and infantile pyknodysostosis developed profound marrow failure causing chronic ongoing anaemia which required multiple blood transfusions. His renal function deteriorated from tubulointerstitial nephritis and is now approaching end stage (eGFR 18 mL/min/1.73 m^2). The chronic anaemia eventually responded to high doses of recombinant erythropoietin. He has two siblings, one of whom has LCA, and another has pyknodysostosis. There are no suitable living donors, so the child is awaiting a deceased donor. Following repeated transfusions, he has developed antibodies to several HLA molecules with a calculated panel reactivity of 50%, excluding 71% of the UK population as suitable donors. This will likely prolong the waiting time for a suitable deceased donor, impacting on his duration of renal replacement therapy and long-term prognosis.

Following recognition that HLA sensitization could devastate the available donor pool, and the fact that leukodepletion has been shown not to reduce sensitization in renal patients awaiting transplant [2] (potentially due to soluble and red-cell-bound HLA) [3], we addressed our transfusion policy. In a limited number of patients, we requested washed red cells, assuming that this would reduce the presence of soluble HLAs in the serum. Further discussion led to more definitive management of the avoidance of allosensitization by using HLA-matched red cells for transfusion as first suggested 25 years ago [4]. A recent study demonstrated matching for HLA-A-, HLA-B- and HLA-DR-negated sensitization in 37 patients [5].

Concerns about HLA-matched transfusions include the availability of suitable units and the cost-benefit, given the additional expense in provision. The increased risk of sensitization in paediatric patients, the predictable need for occasional transfusion, the high probability of paediatric recipients needing more then one graft in a lifetime and the subsequent high number of quality-adjusted life years contribute to our justification that matching red cells for HLA-A, HLA-B and HLA-DR is a sensible approach for the paediatric end-stage renal population.

Authors' contribution

B.C.R., S.A.J. and N.E.M. were involved in the clinical care of the patient. V.C. performed the PRA analysis and typing and J.P.W. facilitated the HLA matching. All authors contributed to the manuscript.

Conflict of interest statement. None declared.

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