

## **The risk of HCV infection through neonatal blood and plasma microtransfusions: a demonstrated need for strict haemovigilance**

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Among the medical procedures used in Italy and elsewhere in the 1960ies, a quite common practice was to give a few mL of blood or plasma to underweight or pre-term neonates <sup>(1)</sup>, regarded as “immature” <sup>(3)</sup> if the birth weight was less than 2.500 g, considering blood transfusion as necessary to correct the inherent anaemia <sup>(15)</sup>.

One could therefore postulate that this practice might have been the cause of HCV infections seen today in the fraction (30-50%) of anti-HCV-positive adult individuals with a negative history for any known risk factors <sup>(1, 17)</sup>.

The transfusion files of 613 children microtransfused with blood or plasma within the first year (of which 494 within the first month) of life, in the years from 1968 to 1974, have been examined in the year 2000 by De Paschale and Coll. <sup>(5)</sup>

57 of the 613 children were traced, 28 of them being found anti-HCV-positive. 17 anti-HCV-positive individuals had been given a mean of 3,8 (range 1-8) microtransfusions, with at least one microtransfusion from a common donor presently found to be anti-HCV-positive and HCV-RNA-positive (genotype 1b): out of them, 15 were HCV-RNA-positive with a 1b genotype, only 2 being HCV-RNA-negative. Only 4, of the 28 anti-HCV-positive individuals, had other risk factors.

Only 5 (3 of which anti-HCV-positive), of the 57 individuals investigated, were aware of having received a transfusion within their first year of life.

The above data show evidence that some HCV infections in adults with a negative history of risk factors might be traced back to microtransfusions received as neonates or within the first year of life <sup>(5)</sup>.

The results of a previous study (in 1994), on 46 Spanish and Italian children with post-transfusion hepatitis C <sup>(2)</sup>, indicated that transfusions in the perinatal period are the single most important cause of hepatitis C in otherwise healthy children.

Being all the above findings referred to blood or plasma microtransfusions in a period where no HCV screening was available in Blood Transfusion Services, it is to be expected that the number of post-transfusion cases will have decreased in the subsequent years <sup>(2)</sup>.

However, the malpractice of indiscriminate neonatal microtransfusions, particularly of plasma, hasn't unfortunately completely died out in all European countries and is not always, moreover, adequately recorded on clinical files.

Sharing aliquots of red cells or plasma units among neonates is potentially infecting multiple recipients <sup>(8, 9, 13)</sup>. Dedicating a unit for an individual patient, and using it up to its full shelf-life, significantly reduces donor exposure <sup>(4, 12, 16)</sup>, and has been recommended for small volume transfusions in neonates by the British guidelines <sup>(14)</sup>.

Although the children transfused in the neonatal period of life are long-living survivors of blood transfusion <sup>(9)</sup>, they are the most vulnerable of transfusion recipients, and the perinatally acquired HCV infection persists a long time in adult life <sup>(10)</sup>; the practice of sharing donations should therefore be definitely discouraged <sup>(9)</sup>.

While attention has been adequately focused on red cell transfusions in neonatal care <sup>(6)</sup>, most neonatal microtransfusions of plasma may still presently, as certainly in the past, remain unknown to the recipients, not being adequately documented in clinical files.

Moreover, given the apparent failure of humoral immune response in cases of neonatally acquired chronic HCV infections <sup>(7)</sup>, an adequate look-back investigation should always include HCV-RNA testing also in presently anti-HCV-negative neonatally transfused individuals.

Although most of the transfusion procedures in neonates and paediatric patients are included in the common frame of general haemovigilance, we may conclude that the practice of shared neonatal microtransfusions represents a ground for some specific measures of good transfusion practice and neonatal haemovigilance.

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