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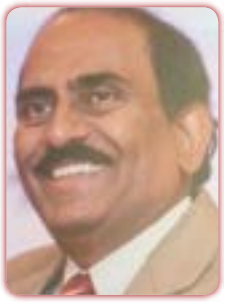

C D Atreya

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MicroRNAs in stored blood cells: What future do they hold in transfusion medicine?

The discovery that human blood and cellular blood components, especially the packed red cells and platelet concentrates collected from healthy volunteers can be stored *ex-vivo* for future use in patients undergoing surgery and bleeding trauma has translated into the so called "blood bank" industry. This very concept has revolutionized the health care by allowing for a managed supply of transfusion quality blood products. During storage, red cells and platelets undergo a series of physiological changes that affect the product quality, which often interferes with the safety and efficacy of such products. This often leads to adverse outcomes in transfused patients. Despite continuous efforts to enhance the product quality, there is still room for improvement for *in-vitro* standard markers of measurable characteristics that can predict *in-vivo* safety and efficacy (i.e., biomarkers) in recipients following transfusion. In the past decades, a group of small non-coding RNAs, known as microRNAs (miRs) have emerged as key players in the control of cellular functions through their targeted post-transcriptional regulation of messenger RNAs (i.e., gene transcripts) in the cytoplasm. This regulatory function of miRs is pertinent to mature red cells and platelets as these cells are devoid of a nucleus and lost their transcriptional regulation mechanisms; they must depend on the available cytoplasmic post-transcriptional regulatory mechanisms for their survival, especially during their *ex-vivo* storage, which is linked to their quality. Therefore study of miRs in stored blood cells is an important area to enhance their quality in storage and extending their shelf-life.

Biography

C D Atreya is the Associate Director for Research, Office of Blood Research and Review, Center for Biologics Research and Review at the U.S. Food and Drug Administration, USA. He has more than 70 scientific publications in peer-reviewed journals and also serves on the Editorial Board for scientific journals of repute in his field of expertise.

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