

Weight

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Individual at risk

Donor

Guidance at RECRUITMENT for adult volunteer donor (NA for maternal donor (cord blood donation))

ACCEPT if body mass index (BMI) is no greater than 40 kg/m² and weight is no less than 50 kg.

Registries may consider having no weight criteria at recruitment on the basis that the weight of the donor is likely to change between recruitment and donation, and due to the relative lack of evidence supporting the deferral of over- or underweight donors.

Guidance at CT / WORK-UP

QUALIFIED, see below.

Qualified guidance

ACCEPTABLE for PBSC if weight is at least 50 kg and BMI is no greater than 40.0 kg/m² (but see below)

ACCEPTABLE for BM if weight is at least 50 kg and BMI is no greater than 35.0 kg/m² (but see below).

Donors outside these limits at work-up should be discussed with the medical officer who may allow them to proceed after discussion with the responsible physician. Consider the following factors when evaluating donors outside the usual limits:

- With underweight donors, the difference between donor and recipient weight should be considered when assessing realistic harvest targets
- Muscle mass – some individuals with high BMI may not be obese; however, other issues such as anabolic steroid abuse and cardiovascular abnormalities may be relevant.
- General anaesthetic risk – the presence of co-morbidities associated with obesity may increase the risk of general anaesthetic if BM collection is requested or considered as a fallback option. In general, co-morbidities should discourage acceptance of donors above the usual BMI limit for bone marrow collection.
- Venous access – peripheral venous access can be poor in obese donors, and is difficult to assess at confirmatory typing stage unless the registry has an amenable protocol in place or access to relevant records such as blood donation history.

o At CT stage, therefore, the possibility of poor venous access should automatically be flagged for any donor accepted above the usual BMI limit for PBSC collection – with or without any qualifying data such as blood donation history. Depending on registry policy for central venous line insertion, a known history of poor venous access might discourage acceptance of donors above the usual BMI limit for PBSC.

o At Work-up stage, venous access must be carefully assessed by the collection centre. If difficulty in gaining peripheral venous access for PBSC collection is anticipated, and therefore central venous access is considered, additional resources should be applied wherever possible, such as anaesthetic consultation or ultrasound guidance. Registries should have in place a policy for central venous line insertion. Otherwise, it may be more appropriate to reject a donor with BMI above 40 kg/m² with poor peripheral venous access than to rely on central line placement as an unplanned contingency.

Justification for guidance

The evidence to support this practice is limited. Pulsipher et al. found a slightly increased risk of adverse events in those with a BMI >30. However, much of the rationale for excluding overweight donors lies with two key points: first, BM harvest is technically a considerably more difficult procedure in overweight donors; and, second, there is much evidence to support the concept that the morbidly obese in general (i.e., with a BMI >35) have a higher risk of premature death, anesthetic complications and occult cardiovascular disease.

For the lower weight limit, those donors less than 50 kg stand a higher chance of not achieving the cell dose requested by the harvest centre.

References

Pulsipher MA, Chitphakdithai P, Logan BR, Shaw BE, Wingard JR, Lazarus HM et al. Acute toxicities of unrelated bone marrow versus peripheral blood stem cell donation: results of a prospective trial from the NMDP. *Blood* 2012. [\[1\]](#)

Adams JP, Murphy PG. Obesity in anaesthesia and intensive care. *Br. J. Anaesth.* 85(1),91–108 (2000) [\[2\]](#)