of regimens. Even with therapeutic drug monitoring of Bu, by the
time results come back, patients may have had 1 or 2 days of high
or low exposure. The required dose change to target a desired cumu-
lative AUC may exceed the clinicians’ willingness to make such a
change. We report here our use of a novel dosing schedule which
always avoids high exposure and is compatible with samples being
sent across long distances for analysis.

Methods: 96 patients from 6 institutions were given Bu over 5 days.
Regimens included BuCy(n = 36), BuFlu(n = 24). Four blood sam-
ple were collected after infusion of a half dose on day 1 and trans-
ported to CHW. On day 2 the second half dose was given whilst
Bu measurement and pharmacokinetic analysis was completed. A
full dose AUC was predicted from the half dose results. On days 3 to
5 patients were administered the remaining Bu doses, modeled
where necessary based on the day 1 AUC. In 71 patients, repeat
AUC analysis after a full dose allowed comparison of predicted
with actual AUC.

Results: The day 1 analysis predicted a full dose AUC range between
3148 and 12664 M.min. Thirty four patients would have had an
AUC > 6000 M.min. For days 3 to 5, 38 had doses reduced and
10 had doses increased to target a desired AUC. After dose adjust-
ments, the repeat AUC was within ±10% predicted in 38 and within
±15% in 51. Two of 36 adults had a final AUC value > 6000 M.min
(but only 6097 and 6187).

Conclusions: There was a wide variability in Bu exposure following
the first dose: 35% of the patients were predicted to be exposed to
levels above the recommended level of 6000 M.min. With dose ad-
justment, targeted dose exposure was within ±15% of predicted
values in 72% of patients and no adult was exposed to an AUC sig-
ificantly > 6000 M.min. This novel dosing schedule allows real-
time pharmacokinetic dose adjustment in multiple centres across
Australia and avoids the problem of having to catch up, or back off
on day 3 and 4 dosing. It is simple and lends itself to centres that
are remote from the lab testing the Bu levels. The impact of concom-
itant medication on the remaining variability in exposure continues
to be studied.

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PILOT STUDY ON THE MEASUREMENT OF CALCINEURIN PHOSPHATASE
ACTIVITY ON DAY 21 IN ALLOGENEIC STEM CELL RECIPIENTS
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Background: Tacrolimus (TAC) suppress T-cell activation by the
action on calcineurin (CN). CN activity was assessed in the allogene-
ic recipients who were treated with TAC for graft-versus-host disease
(GVHD) prophylaxis to investigate whether CN activity increased in patients with severe acute GVHD.

Methods: Forty patients who underwent allogeneic stem cell trans-
plantation (SCT) using TAC as GVHD prophylaxis were analyzed for GVHD. Among them, CN activity was analyzed in the 10 con-
secutive patients. TAC was administered at a dose of 0.03 mg/kg
intravenously from day-1 to +21. TAC levels and CN activity were
assessed on day-1 before TAC administration and days 0, +3, +7,
+14, and +21. Target TAC concentration (15-20 ng/ml) was main-
tained during the current study.

Results: The cumulative incidence of acute GVHD (74.1% vs.
60.3%, p = 0.888) and severe chronic GVHD (22.5% vs. 33.3%,
p = 0.539) were not different between groups with high and low
TAC trough levels. CN activity on day-1 was 0.12±0.09 nmol and
had decreased from baseline level (0.29±1.15 nmol) (p < 0.001).
There was no correlation between CN activity and TAC concentra-
tions (r = 0.024). CN activity was steady-state during post-trans-
plant day 0 to +14 regardless of acute GVHD. CN activity on
day+21 for those with grade 2-4 acute GVHD showed a higher
CN activity (0.18±0.04 nmol) compared to those without grade 2-
4 acute GVHD (0.14±0.05 nmol, p = 0.462). The cumulative inci-
dence of acute GVHD (40% vs. 80%, p = 0.248) and chronic
GVHD (20% vs. 70%, p = 0.464) between low and high CN activity
were not significantly different.

Conclusions: Although TAC was higher for the high CN activity
group, this pilot study failed to demonstrate significant difference
due to small sample size. However, the patients manifesting
GVHD with high CN activity on post-transplant D+21 may need to
be treated with other kinds of immunosuppressive agent regard-
less of drug level.

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CHARACTERIZATION OF ORAL INVOLVEMENT IN ACUTE-GRAFT-VERSUS-
HOST DISEASE
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Introduction: Acute graft-versus-host disease (aGVHD) is a major
complication of allogeneic hematopoietic cell transplantation
(HCT). The purpose of this study was to characterize the oral
features associated with aGVHD.

Methods: Patients that underwent allogeneic HCT at Dana-Farber/
Bramgham and Women’s Cancer Center (Boston, MA) between 1995
and 2010 and developed prominent oral aGVHD were identified.
Data was collected from patient medical records using a standardized
form and analyzed descriptively.

Results: Eighteen cases were identified, of which 5 (28%) only dem-
strated oral features; the remaining 13 had variable involvement of
skin (13/18, 72%), liver (6/18, 33%), and gut (5/18, 28%). Oral mu-
cositis preceded aGVHD in 10 (56%) patients. The median time to
course of oral aGVHD was 34 days (range 11-159). Intraoral sites af-
fected by non-specific ulcerations included the tongue (16/18, 89%;
dorsum in 7/18), bucal mucosa (16/18, 89%), labial mucosa (13/18,
72%), palate (12/18, 67%; hard palate in 7/18), and floor of mouth
(6/18; 33%); 7 (39%) cases presented with prominent lip ulceration
and crusting. Salivary gland disease features included severe hypo-
function (1/18; 6%) and palatal mucoceles (1/18; 6%). In addition
to systemic therapies, topical preparations of dexamethasone (10/
18; 56%), tacrolimus (7/18; 39%), and morphine (3/18; 17%) were
utilized for ancillary support. Of the 13 (72%) patients that survived
beyond day100, two developed oral cGVHD.

Conclusions: Oral features of aGVHD include extensive non-spe-
cific ulcerations of keratinized and non-keratinized mucosa and are
often observed in the context of concurrent skin, liver and gut in-
volvelement. Intensive topical therapies may be helpful in reducing
symptoms and promoting healing. Concurrent salivary gland
involvement appears to be infrequent.

Relevance: Oral medicine specialists can play an important role in
both its diagnosis and management; the HCT team should be aware
that aGVHD can present with oral features that might be responsive
to topical therapies.

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SCREENING FOR HEMOGLOBINOPATHIES IN ALLOGENEIC CORD BLOOD
UNITS USING CAPILLARY ELECTROPHORESIS
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Introduction: Hemoglobinopathies are common hereditary dis-
ese with very different clinical outcomes. Since severe hemoglobin-
opathies like sickle cell anemia or thalassemia major are by
themselves indications for transplantation, these inborn errors are
often observed in the context of concurrent skin, liver and gut in-
volvelement. Intensive topical therapies may be helpful in reducing
symptoms and promoting healing. Concurrent salivary gland
involvement appears to be infrequent.

Material and Methods: We used the Capillaries 2 hemoglobin elec-
trophoresis machine and the Capillaries cord blood procedure by Se-
bia. Analyses are performed on anti-coagulated cord blood before
volume reduction. The red blood cells are sedimented and plasma
is removed completely. Before measuring the samples are hemolysed
automatically.

Results: So far, a total of 717 measurements were performed. In
1.5% of all samples hemoglobin variants were detected, namely six
cases of Hb Bart, three cases of heterozygous Hb S and one case of
a heterozygous hemoglobin variant, most likely Hb-E. These sam-
pies were then sent to a specialized laboratory for PCR-testing, and