**Commentary**

Avoiding distress when treating lacerations in a trauma unit is a commendable objective and was achieved in this study in the majority of children over the age of 4 years. However, under 4 years of age, 68% of the patients were crying. Using adrenaline and cocaine 'dripped into the wound' avoided the pain of injecting lignocaine. Their previous unreported experience excluded the use of a comparison group of patients, so it is not possible to quantify any advantage of this technique. However, the authors do not caution against the use of adrenaline on extremities supplied by end arteries, but they justify the very high dose of cocaine by claiming minimal absorption with the 'local vasoconstriction' of adrenaline.

Before requesting the hospital pharmacy to supply this solution, paediatricians should consider the potential difficulties of storing two controlled drugs of uncertain stability unless kept at a defined temperature. Clear instructions must be issued excluding patients with a history of convulsions or cardiac disease and patients with lacerations on extremities or on mucosal or burnt surfaces.

This study suggests that the technique is not appropriate under the age of 4 years and provides no data to demonstrate that it is associated with less distress than cheaper and safer traditional infiltration with lignocaine.

D P DRAKE
*Paediatric surgeon*

P A DALE
*Staff pharmacist*
*Queen Elizabeth Hospital for Children, Hackney Road, London E2 8PS*

# Lymphocytes bearing the T cell receptor γδ in human breast milk

A Bertotto, G Castellucci, G Fabietti, F Scalise, R Vaccaro

**Abstract**

**Lymphocytes bearing the T cell receptor γδ (TCR–γδ) were searched for in human early milk lymphocyte suspensions by two colour cytofluorimetric analysis. It was found that the proportion of TCR–$\gamma\delta^+$ cells was twofold greater in colostrum than in either autologous or heterologous blood samples. Additional studies are needed to determine whether this particular subset of lymphocytes is involved in the lactation transmission of cellular immunity.**

Although great strides have been made in defining the tissue distribution of, and receptor gene usage by, human lymphocytes bearing the T cell receptor γδ(TCR–γδ),[1] their migratory behaviour and homing mechanisms are completely unknown. Human colostrum and milk contain a substantial number of immunocompetent cells,[2] including T lymphocytes ($CD3^+$) of both helper-inducer ($CD3^+/CD4^+$) and suppressor-cytotoxic ($CD3^+/CD8^+$) phenotype.[3] In vitro, colostral T cells display certain characteristics of immunocompetence, but often possess antigenic reactivities different from those of the peripheral blood lymphocytes.[4] It has consequently been postulated that immune system cells are compartmentalised in the mammary gland during lactation and that T lymphocytes do not accumulate randomly in colostrum, but rather are directed there by a selective homing process.[4] With these findings in mind, we designed experiments to ascertain whether indeed TCR-$\gamma\delta^+$ cells do migrate to the mammary gland during pregnancy and lactation.

**Department of Paediatrics, Perugia University Medical School, Policlinico-Monteluce, I-06100 Perugia, Italy**
A Bertotto
G Castellucci
G Fabietti
F Scalise
R Vaccaro

Correspondence to:
Dr Bertotto.

Accepted 10 July 1990

(*Arch Dis Child* 1990;65:1274–5).

## Materials and methods

Early milk samples were collected by manual expression from 15 lactating healthy mothers between days four and seven after delivery of normal term infants. The colostral lymphocytes were separated by equilibrium density gradient centrifugation as described by Richie *et al.*[3] Milk TCR–$\gamma\delta^+$ cells were phenotypically identified by an indirect immunofluorescence staining technique. The monoclonal antibodies used for staining were OKT3 (anti-CD3) ($IgG_{2a}$, Ortho) and anti-TCR δ 1 ($IgG_1$, T Cell Sciences) which binds to a δ constant region determinant of the γδ heterodimer[1] and reacts with all known TCR–γδ bearing cell clones and lines. Briefly, $1\times10^5$ cells were incubated for 30 minutes at 4°C with saturating concentrations of each antibody or with identical concentrations of isotype matched monoclonal antibodies that do not react with human cells. The cells were then washed twice and counterstained with goat antimouse F $(ab')_2$ subclass specific antisera conjugated with either fluorescein-isothiocyanate or phycoerythrin (Southern Biotechnology Associates). After two more washings, the monoclonal antibody bound to the cell preparations was assessed by flow cytometry (FACScan, Becton Dickinson). Data were collected from 20 000 cells per sample and analysed by a Hewlett Packard computer. Autologous and heterologous blood samples were similarly processed and the numbers of TCR–$\gamma\delta^+$ cells compared with those of the mammary secretions.

## Results

As in previously published data,[3] the percent-