PREDNISOLONE
TIME TESTED
STALWART
V/S
THE UPSTART

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• FOR DECADES, PREDNISOLONE HAS BEEN THE FIRST CHOICE IN GLUCOCORTICOID THERAPY
• ACUTE AND CHRONIC

• EFFICACY BEYOND DOUBT
• UMPTEEN TRIALS IN EVERY TREATABLE CONDITION

“THE DEVIL WE KNOW”
FACT NO 1

- Deflazacort, an oxazoline derivative of prednisolone first became available in 1969


- THROUGH 41 YEARS WHY SUCH SPARSE DATA?
CLAIMS OF SUPERIORITY

• BASED ON SO CALLED “EQUIPOTENCY RATIOS”

• EQUIPOTENCY RATIOS!
  “fewer adverse effects at equivalent anti-inflammatory potency.”

• Lets take a closer look!
WHAT IS THIS ALLEGED SUPERIORITY BASED ON?

• Potency Ratio estimated to be D:P= 1.28

• But in fact the equivalence depends on the disease

• 1:1.2 to 1:1.5 have also been reported across individual disease conditions such as rheumatoid arthritis, asthma and polymyalgia rheumatica in adult patients.


WHAT IS THIS ALLEGED SUPERIORITY BASED ON?

• This study compared the acute effects of deflazacort and prednisolone on serum cortisol, osteocalcin, insulin and blood cells (eosinophils and lymphocytes) in normal subjects

• Babadjanova¹, B. Allolio¹, M. Vollmer², M. Reincke¹ and H. M. Schulte²

• Schwerpunkt Endokrinologie, Medizinische Universitätsklinik Würzburg, Josef-Schneider-Strasse 2, D-97080 Wuerzburg Germany, DE
WHAT IS THIS ALLEGED SUPERIORITY BASED ON?

• SEE THESE RATIOS!

• osteocalcin suppression 1.54,
• cortisol suppression 2.27,
• suppression of eosinophils 1.14
• lymphocytes 2.77.
• equipotency could not be calculated for insulin.
• In 3 subjects even the highest dose of deflazacort failed to suppress serum cortisol.
• This study highlights the difficulties of establishing equipotency ratios for glucocorticoids. It casts doubts on the generally assumed equipotency dose ratio of deflazacort vs prednisolone, as both for cortisol & lymphocytes the 95% CI was $> 1.2$.

• Thus, reduced adverse effects during deflazacort therapy may be a consequence of lower effective glucocorticoid dosage.
A WINNER ALL THE WAY?

• TAKE A CLOSER LOOK

• A multicentre trial was organized to evaluate the effects of DFZ vs prednisone (PDN) on statural growth and skeletal maturation in a group of prepubertal children requiring glucocorticoid therapy for at least 6 months/year

• Aicardi G Benso L et al
• Dose-dependent effects of deflazacort and prednisone on growth and skeletal maturation
A WINNER ALL THE WAY?

- During an alternate–day regimen, height velocity was slightly higher in the PDN group and skeletal age velocity was higher in the DFZ group.

- During the suspended treatment phase, no prominent catch up growth was observed in either of the two treatment groups, as reflected by the statural indices.
Deflazacort: A Review of its Pharmacological Properties and Therapeutic Efficacy
Markham, Anthony; Bryson, Harriet M

**Drugs**  *August 1995 - Volume 50 – Issue 2*

Few studies have evaluated the efficacy of deflazacort as treatment for asthma and those that are available were designed primarily to assess the dosage equivalence of deflazacort and prednisone; clinical efficacy was a secondary end-point.

- The larger of 2 studies comparing deflazacort and prednisone in patients with asthma was conducted in 3 stages.
- **During the final stage (12 weeks) parameters of pulmonary function worsened in deflazacort recipients but improved in prednisone recipients**
Wonderful in Diabetics???

• Deflazacort V/s other Glucocorticoids
• Surajit Naik, Basanti Acharya
• Ind J Dermatol 2008:53 (4) :167-70

DFZ claimed to be less Diabetogenic not confirmed by a recent study

• Bruno A et al  Eur Jr of Clin Pharmac 1992;43  47-50
• In 1998, the drug was withdrawn from the market as the Medicines Control Agency in the United Kingdom did not find it superior in terms of side-effects as compared to prednisolone.

• Vol 37 No 8 Aug 1999 Drug and Therapeutics Bulletin
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<th><strong>PREDNISOLONE</strong></th>
<th><strong>DEFLAZACORT</strong></th>
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<tr>
<td><strong>SYRUP 60 ML (5 mg/5 ml)</strong></td>
<td>Cost `21.8</td>
<td>Cost 50x2 = `100</td>
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<td><strong>TAB 5 mg (Strip of 10)</strong></td>
<td>Cost `4</td>
<td><strong>TAB 6 mg (Strip of 10)</strong></td>
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**BENEFITS ? : CERTAINLY TO THE MANUFACTURER & DEALERS**
THE LOGICAL CONCLUSION

- WHAT WILL AN UNBIASED AND THINKING AUDIENCE CONCLUDE?
- TOO FEW STUDIES.
- METHODS OF COMPARISON QUESTIONABLE
- LACK OF CONCLUSIVE PROOF....
- MUCH MORE EXPENSIVE!
- NOT A GREAT ALTERNATIVE

- MOST REVIEWERS WOULD AGREE!
“On the available evidence we are unable to identify particular circumstances in which Deflazacort should be started in preference to established First line corticosteroid therapy”
The number of large randomized trials using deflazacort for steroid-responsive disorders in children is limited.

Use of deflazacort has been explored largely in patients with Duchenne's muscular dystrophy.

Joshi N, Rajeshwari K. Deflazacort.

From the available evidence, it is still premature to label deflazacort as superior to conventional steroids for various conditions both in terms of efficacy and safety profile.

In view of the limited data demonstrating superiority of deflazacort over the available oral steroids and its prohibitive cost, it is too early to advocate widespread use of this drug in children.