Advice Note on Concordance monitoring: measuring Prednisolone levels

(For use in a fully assessed and monitored patient as part of a difficult asthma service)

Rationale: poor concordance on the level of asthma therapy to be taken to gain and maintain good asthma is common in asthma generally and very common in difficult asthma (Gamble, J et al The Prevalence of Nonadherence in Difficult Asthma; Am J Respir Crit Care Med Vol 180. pp 817–822, 2009

Concordance is difficult to judge subjectively and objective measures of concordance are therefore helpful. Poor absorption of prednisolone is very uncommon, but an absorption study may be useful confirmatory evidence of poor concordance in a patient who denies not taking Prednisolone.

Preparatory work: discuss this with a local biochemist with an interest in corticosteroids and, if appropriate, agree a cost code or alternative funding method (the sample may simply be discarded if you fail to do this). Prednisolone samples are sent to Wythenshawe Hospital, Manchester and cost £21.50 approximately

SOP: monitoring sample for patient taking regular daily Prednisolone
Obtain a morning blood sample. This should be a serum sample – yellow top (2 – one for cortisol, which is measured locally, one for Prednisolone)
Label each sample with the date & time taken
On the biochemistry request form ask for prednisolone and cortisol levels “in a patient with difficult asthma” and quote any agreed cost code and/or local biochemist as internal contact person.

SOP: Absorption study
Ask the patient to attend in the morning, advise them NOT to take prednisolone that day
Take baseline samples for cortisol & Prednisolone
Administer a supervised dose of 30mg Prednisolone
Take further samples for prednisolone assay at 1hr and 3hrs post dose
Handle samples as detailed above

Interpretation: expect a detectable prednisolone level providing the sample is taken within 4 hours of the regular dose; expect an undetectable cortisol level in any patient taking more than 10mg daily. A detectable prednisolone level together with a normal cortisol suggests the patient has taken their dose on that day, but may not do so regularly.

Useful phone numbers – Wythenshawe 0161 291 2136, Biochem (insert your local department number here)

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