Synergo®

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Innovations in treating Bladder Cancer and Synergo Workshop In collaboration with Rome Catholic University, Prof. PF Bassi, December 2, 2005

Rome, Italy: WebCafe's review of the presentations

{/niftybox}Medical Enterprises: Synergo®

Intravesical Hyperthermia for non-muscle-invasive bladder cancer - improves effectiveness of Mitomycin C

For a list of institutions in Europe using this method, see below

Update Dec. 2005- References - Partial List of Published articles, see below

Local microwave-induced hyperthermia has a therapeutical potential for the treatment of many solid tumors. In bladder cancer it has shown itself to be especially useful when combined with intravesical chemotherapy for non-muscle-invasive tumors.. After extensive laboratory investigations, recent advances in miniaturized technology have led to the development of equipment which is specially designed for delivering thermo-chemotherapy (also known as thermal intravesical chemotherapy) to the human bladder.

Ongoing human and animal studies conducted in Europe and Israel dating back some 12 years or more have proven that microwave-induced hyperthermia combined with intravesical mitomycin C is a feasible, effective and safe conservative approach for those with [high risk] multiple and recurrent non-muscle-invasive bladder tumors when other treatment strategies have failed, and/or when cystectomy is contra-indicated or the patient refuses to undergo radical surgery.

Recent clinical experience has shown that treatments with Synergo® are highly efficient and give a lower recurrence rate than traditional methods. Synergo® technology has been approved by the European Standard Authorities (CE) and is now in the process of receiving FDA approval in the US.

In one randomized study, the patients having the new treatment showed a much lower recurrence rate (20%) than patients receiving conventional treatment (70%).

During the last decade this system was mainly used as an alternative to TURB. When clinically used for this indication, this system was shown to be effective, and safe. In a randomized trial it was more effective than intravesical chemotherapy alone.1

With the system now in clinical practice, a 915 MHz microwave applicator is inserted into the bladder via a special catheter. In addition, a set of thermocouples are inserted to control the tempature of the bladder wall layers which are heated to a temperature of 42 +/- 2 degree Celcius (approximately 104 degrees Farenheit +/- 1 degree). The drug is then pumped out and re-instilled, as a way of avoid overheating. Everything is monitored by a computerized unit with special software.

Each treatment lasts one hour, no major systemic side effects are observed, with local side effects being tolerable and temporary; no regional or general anesthetic is required, and patients can resume normal daily activities the same day.

All studies performed to date have shown the benefit of the Synergo® system over TUR or TUR+intravesical chemo with improved clinical results, lower recurrence rates and a reduced need for cystectomy. (see list below)

Synergo® treatments are performed in Germany, Israel and Italy, Holland, Switzerland, Austria, France and Belgium. For more info see article: New Technology For Superficial Bladder Cancer; http://www.medinews.com/GMEDTS32olcgi/ts.cgi?tsurl=0.55.1236.0.0 and manufacturer's website, Medical Enterprises

www.Medical-Enterprises.com Medical Enterprises Europe B.V.

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To read all abstracts about thermo-chemotherapy at the National Library of Medicine click here

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Effect of Hyperthermia on the Cytotoxicity of Four Chemotherapeutic Agents Currently Used for the Treatment of Transitional Cell Carcinoma of the Bladder - An in Vitro Study. Van der Heijden A.G, Verhaegh G, Cornelius F. J. J, Schalken J.A, Witjes J.A. J Urol Vol. 173, 1375-1380, 2005.

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Multicentric Study Comparing Intravesical Chemotherapy Alone and With Local Microwave Hyperthermia for Prophylaxis of Recurrence of Superficial Transitional Cell Carcinoma. Colombo R, Da Pozzo L.F, Salonia A, Rigatti P, Leib Z, Baniel J, Caldarera E, Pavone-Macaluso M. J Clin Oncol. 21:4270-4276;2003.

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J Urol 155:1227-1232;1996. Colombo R, Da Pozzo L.F, Lev A, Freschi M, Gallus G, Rigatti P.

Synergo for chemo-resection:

Thermo-chemotherapy and electromotive drug administration of mitomycin C in superficial bladder cancer eradication. Eur Urol 39:95-100;2001. Colombo R, Brausi M, Da Pozzo L.F, Salonia A, Montorsi F, Scattoni V, Roscigno M, Rigatti P

Medline Abstract, excerpt:

"A higher complete response rate on marker lesion was observed after thermo-chemotherapy compared to other administration methods. CONCLUSION: The intravesical administration of mitomycin C can be safely performed in the form of both thermo-chemotherapy and electromotive drug approach with an increased ablative success rate on small superficial tumor involving only minimal local side effects." .

Intravesical electromotive mitomycin C versus passive transport mitomycin C for high risk superficial bladder cancer: a prospective randomized study.

Di Stasi SM, Giannantoni A, Stephen RL, Capelli G, Navarra P, Massoud R, Vespasiani G. Departments of Urology and Clinical Biochemistry, Tor Vergata University, Via Torrice n. 4, 00189 Rome, Italy; J Urol. 2003 Sep;170(3):777-82. PMID: 12913696

CONCLUSIONS: Intravesical electromotive administration increases bladder uptake of MMC, resulting in an improved response rate in cases of high risk superficial bladder cancer.Medline abstract

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Local microwave hyperthermia and intravesical chemotherapy as bladder sparing treatment for select multifocal and unresectable superficial bladder tumors. Colombo R; Da Pozzo LF; Lev A; Salonia A; Rigatti P; Leib Z; Servadio C; Caldarera E; Pavone-Macaluso M

Department of Urology, Scientific Institute H. San Raffaele, Milan, Italy.

J Urol 1998 Mar;159(3):783-7 PMID: 9474148 UI: 98134423 CONCLUSIONS: Microwave induced hyperthermia combined with intravesical mitomycin C seems to be a feasible, safe and elective approach for conservative treatment of multifocal and recurrent superficial bladder tumors when other treatment strategies have failed. Medline Abstract

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.Study of the synergy of microwave hyperthermia/intravesical chemotherapy in the prevention of recurrences of superficial tumors of the bladder Mauroy B; Bonnal Jl; Prevost B; Chive M; Lhotellier V; Sozanski JP; Vanseymortier L; Stefaniak X Service Univeritaire d'Urologie, CHU de Lille-Roubaix, France Prog Urol 1999 Feb; 9(1):69-80 PMID: 10212955 UI:99229425 CONCLUSION: A possible clinical application is potentiation of the action of mitomycin C by hyperthermia in the prevention of recurrent superficial bladder tumours, achieving increased efficacy and/or a decreased number of instillations. Medline Abstract_____

Multicentric Study Comparing Intravesical Chemotherapy Alone and With

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Transitional Cell Carcinoma. J Clin Oncol. 21:4270-4276;2003. Colombo R, Da Pozzo L.F, Salonia A, Rigatti P, Leib Z, Baniel J, Caldarera E, Pavone-Macaluso M. Medline Abstract, excerpt:

"Survival analysis of the 75 assessable patients demonstrated a highly significant difference in the survival curves in favor of thermochemotherapy. ..In our series, endovesical thermochemotherapy appears to be more effective than standard endovesical chemotherapy as an adjuvant treatment for superficial bladder tumors at 24-month follow-up, despite an increased but acceptable local toxicity.

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Combined intravesical hyperthermia and mitomycin chemotherapy: a preliminary in vivo study.Rath-Wolfson L, Moskovitz B, Dekel Y, Kugel V, Koren R. Department of Pathology, Hasharon Hospital, Rabin Medical Centre, Petah-Tikva, Israel Int J Exp Pathol. 2003 Jun;84(3):145-52. PMID: 12974944

Conclusions: [in animal studies] the control group showed similar changes, some less pronounced. The combined treatment of hyperthermia with mitomycin C did not cause major damage to the urinary bladder or adjacent organs. All changes were superficial and reversible, and the control group showed similar changes, some less pronounced. Although this is an experimental model based on one single session treatment, rather than repeated treatments, it suggests that the approach may be useful in future studies both in models and man. Medine abstract

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Effect of local hyperthermia of the bladder on mitomycin C pharmacokinetics during intravesical chemotherapy for the treatment of superficial transitional cell carcinoma. Br J Clin Pharmacol 52:273–278;2001. Paroni R, Salonia A, Lev A, Da Pozzo L.F, Cighetti G, Montorsi F, Rigatti P, Colombo R.

Medline Abstract excerpt:

CONCLUSIONS: Local hyperthermia enhances the systemic absorption of MMC during intravesical chemotherapy for bladder cancer. In the doses used, plasma MMC concentrations were always more than six times lower than those shown to cause toxicity. _____

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Caldarera E, Pavone-Macaluso M.

Patients are being treated with Synergo at the following institutions:

AUSTRIA

Prof. Bartsch, TILAK Clinic Innsbruck

Prof. Bartsch, Clinic Innsbruck

BELGIUM

Prof. Schulman, Dr. Zlotta, Erasme Hospital, Brussels *

Prof. Schulman, Dr. Zlotta, Erasme Hospital, Brussels *

FRANCE

Prof. Martin, Prof. Colombel, Edouard Herriot Hospital, Lyon *

Prof. Gattegno, Tenon Hospital, Paris *

Prof. Hermanowicz, St Joseph Hospital, Marseille

Prof. Houlgatte, Hôpital d’instruction des armées du Val de Grâce, Paris

Prof. Teillac, Saint-Louis Hospital, Paris *

GERMANY

Prof. Alken, Klinikum Mannheim, Mannheim University Hospital

Prof. Chaussy, Krankenhaus Harlaching, Munich *

Prof. Muschter, Diakoniekrankenhaus Urologie, Rotenburg

Prof. Stenzl, Eberhard Karls University, Tuebingen

Prof. Tunn, City Hospital, Offenbach

ISRAEL

Prof. Baniel, Rabin Medical Center, Petah-Tikva

Dr. Leibovitch, Meir Medical Centre, Kefar-Saba

Prof. Kaneti, Soroka Medical Centre, Be'er-Sheva

Prof. Meretik, Rambam Medical Centre, Haifa

Prof. Nativ, Bnai-Zion Hospital, Haifa *

Prof. Pode, Hadassah University Hospital, Jerusalem *

Prof. Sidi, Wolfson Medical Center, Holon *

Prof. Stein, Carmel Medical Center, Haifa

Prof. Nativ, Bnai-Zion Hospital, Haifa *

Prof. Pode, Hadassah University Hospital, Jerusalem *

Prof. Sidi, Wolfson Hospital, Holon *

ITALY

Prof. Barbieri, Urology Dep., Ospedale C.G. Mazzoni, Ascoli Piceno

Prof. Bassi, Urology Dep., Sacro Cuore Catholic University Hospital "A. Gemelli", Rome

Prof. Conti, Urology Dep. Sant'Anna Hospital, Como

Prof. De Cobelli, Urology Dep. European Institute of Oncology, Milan *

Prof. Maffezzini, Urology Dep. Galliera Hospital, Genoa

Prof. Miano, Urology Dep. St. Andrea Hospital, Rome

Prof. Pavone, University Policlinic Hospital, Palermo *

Prof. Pino, Urology Dep, Treviglio Hosptial, Treviglio

Prof. Rigatti, Dr.Colombo, HSR Hospital, Milan*

Prof. Vavassori, Urology Dep. Humanitas Gavazzeni, Bergamo

Prof. Barbieri, Ospedale C.G. Mazzoni, Ascoli Piceno

Prof. Conti, Urology Dep. Sant'Anna Hospital, Como

Prof. De Cobelli, Urology Dep. European Institute of Oncology, Milan *

Prof. Pavone, University Policlinic Hospital, Palermo *

Prof. Pino, Azienda Ospedaliera, Ospedale di Treviglio

Prof. Rigatti, Dr.Colombo, HSR Hospital, Milan*

Prof. Rocco, Urology Dep. San Paolo Hospital, Milan

SWITZERLAND

Prof. Studer, Dr. Thalmann, Inselpital, Bern

Prof. Studer, Dr. Thalmann, Inselpital, Bern

THE NETHERLANDS

Dr. Oosterhof, Academic Hospital, Maastricht

Dr. van der Meijden, Jeroen Bosch hospital, Hertogenbosch

Prof. Witjes, University Hospital, Nijmegen *

Dr. van Moorselaar, Universitair Medisch Centrum (UMC), Utrecht

Dr. Oosterhof, Academic Hospital AZM, Maastricht

* Centers participating in the clinical study.

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